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ABSTRACT

The evaluation report by Bartholomew Consolidated School Corporation (Columbus, Indiana) describes findings concerning what works and what does not work in the Academic Challenge Program, a gifted and talented education program at the elementary and middle school levels. A corollary purpose of the report is to share the evaluation plan itself, which consists of formative and summative evaluation procedures focusing on the following areas: (1) planning and teaching concerns; (2) student peer interaction; (3) scholastic aptitude enhancement; (4) cognitive influences; (5) cognitive-affective interface influences; and (6) affective influences. While no changes were recommended in the elementary level program, the report suggests an increase in group projects, field trips, discussion groups, and innovative inquiry teaching methods for the middle school program, as well as the use of nontraditional selection and evaluation approaches in addition to those currently used by teachers at the middle school level. Student retention and low student achievement are issues identified for further study. The appendices include the Program Working Evaluation Design; professional staff interview schedule; peer interaction interview schedule; and the text of five test instruments used to evaluate students' critical and divergent thinking skills, study habits and attitudes, self-concept, and locus of control. (JW)

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EVALUATION REPORT

ACADEMIC CHALLENGE PROGRAM

Bartholomew Consolidated School Corporation

Columbus, Indiana

December, 1986

Dr. Ralph H. Lieber, Superintendent of Schools

Dr. M. Sue Pifer, Assistant Superintendent
for Curriculum and Instruction

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Evaluation Report

ACADEMIC CHALLENGE PROGRAM

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December, 1986

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Preface

The intent of this document was to develop a product which might have a multi-purpose orientation. The first and foremost purpose was to share locally and with other school systems the history and findings of the Bartholomew Consolidated School Corporation's (BCSC) design to determine what works and what does not work in the Corporation's Gifted and Talented Program. Decision makers and stakeholders in the BCSC and in other school systems include involved and concerned teachers and administrators, parents and local community in general, members of the professional special education community and other interested parties. A second and corollary purpose of this document was to provide a workable evaluation design or plan composed of different types of approaches running the gamut from highly formative to highly summative. While the BCSC evaluation efforts might be perceived as a somewhat overly ambitious attempt at evaluation of a gifted education program, they have constituted a comprehensive and profound learning experience for those involved.

Another purpose of the document was to facilitate potential needs in several other areas. The document potentially contains additions to the gifted education knowledge base along with useful bits of information for researchers in the field. It potentially contains implications for the needs of classroom teachers in the areas of selection techniques, curriculum development, inservice training and emerging new role expectations and descriptions. The

organization, format and flow of this report was planned to be fairly conventional, with attempts and concerted efforts to develop an approach that appears as non-technical as possible.

In the section labeled "Program Overview and Evaluation Orientation", the rationale for and philosophy of the Academic Challenge Program is discussed along with a brief description of the Program at the three school system organization levels. The evaluation design and information collection procedures are also elaborated upon. Included in the section entitled "Planning and Teaching Concerns" are the logistics and rationale behind the teacher interviewing process. Questions contained in the interview schedule are discussed, followed by brief summaries of the responses to each question and the actual responses of the teachers. The "Student Peer Interaction" section contains questions and responses of nine students in the middle school Academic Challenge program.

In the section entitled "Scholastic Aptitude Enhancement", pretest and posttest scores of students in the elementary school Academic Challenge program are compared to student scores in a comparison group with respect to several dimensions of academic aptitude and skills. The section named "Cognitive Influences" shows a comparison of middle school Academic Challenge program students to students in a comparable group with respect to critical thinking and divergent thinking skills. The "Cognitive-Affective Interface Influences" section reveals the study orientation (study attitudes and study habits) of two groups of middle school students within the Academic Challenge program, and one group of students not in the program. Once again, students in the Academic Challenge program are compared to a control group with respect to

self-concept development and locus of control orientation in the section called "Affective Influences." In the final section, entitled "Conclusions and Recommendations", conclusions are drawn from the data, and recommendations stemming from the conclusions are set forth.

Acknowledgments:

Seldom is an effort of this nature and magnitude successful without help and encouragement from many people. The completion of this Project and evaluation effort would have not been possible without the generous assistance of numerous individuals. Special appreciation is extended to those individuals.

Many thanks to the Bartholomew Consolidated School Corporation Superintendent, Dr. Ralph Lieber, and Assistant Superintendent for Curriculum and Instruction, Dr. M. Sue Pifer, for their support and guidance.

Gratitude is extended to the administrators and teachers who graciously cooperated with the testing and interviews so necessary for this evaluation. Special thanks go to Willis Hagan (principal), Burdell Sell (assistant principal), and the faculty at Central Middle School; and to Robert Adams (principal), Gary McBride (assistant principal), and the Northside Middle School faculty. All elementary schools were involved in the evaluation process; thanks go to the following principals, and the teachers in their respective schools:

Larry Brock, Richards Elementary School; Vera Brown, Taylorsville Elementary School; John Davis, Clifty Creek Elementary

School; Charles Dilk, Parkside Elementary School; Karen Garrity, Mt. Healthy Elementary School; Larry Harden, Southside Elementary School; Duane Horrall, Rockcreek Elementary School; Joel Metzler, Lincoln Elementary School; Pete Orlich, Lillian Schmitt Elementary School; Dean Perry, Fodrea Elementary School; Smith Snively, Francis Smith Elementary School; and Sharon Wilson-Owens, Jefferson Elementary School.

Appreciation is extended to parents for their support, and to students themselves for their cooperation and effort. Also, to Steve Hoover at Purdue University, who provided timely advice during the process, thanks are extended. The Gifted/Talented Advisory Committee provided critical review of the evaluation design; their help is greatly appreciated. For their guidance and advice, thanks go to the Gifted/Talented Facilitation Team of Larry Brock, Vera Brown, Dick Fleck, Karen Garrity, Judy Gaskins, and Joel Metzler. And finally, to the elementary Academic Challenge teachers, tremendous thanks is owed for their cooperation and continued support.

...the charge has been given to our nation's greatest natural resource to address societal concerns in the 21st century.

D.A.J.
Columbus, Indiana

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PROGRAM OVERVIEW AND EVALUATION ORIENTATION.

An integral part of the school system's philosophy is the belief that all students are entitled to an education that meets individual needs. Through this philosophy the Board of Education has created programs for students at all ability levels. Programming for gifted/talented students in the school system is a direct result of this theory put into practice. The philosophy for gifted/talented education of the Bartholomew Consolidated School Corporation is as follows:

- that gifted children exist in all ethnic, religious and socioeconomic groups;
- that gifted chidren have exceptional needs;
- that gifted children exhibit one or more of the following characteristics:
  - superior intellectual ability
  - high expressive abilities
  - advanced achievement levels
  - advanced psychomotor ability

In 1977 the first Gifted/Talented Program Task Force was organized to assess the needs of the school population, survey program options, attend workshops, and encourage staff to undertake university coursework in gifted/talented education. During January of 1982, two full-time, self-contained classes were offered to fourth and fifth graders. In the fall of 1983, the format was expanded to grades four through six, and to a total of six classrooms. Middle school classes were established that year, and the entire program was given the name "Academic Challenge". In 1984, "Academic Challenge" continued to grow and change as the school system became one of ten "Lighthouse Districts" for gifted education in the State. The program became a Model Site for the State in 1985.

The identification process begins during the spring semester in order for planning to be made for student placement in the fall. Standardized achievement and I.Q. test scores, teacher nominations, parent nominations and grades are used to identify an initial screening group. Further data are collected and compiled with input from parents, students, and teachers. Final selection is based on these secondary screening data and professional judgment.

The K-3 program provides for acceleration and enrichment, utilizing differentiated curriculum and instructional techniques. In grades 4-6, students identified as having outstanding intellectual ability and/or academic aptitude are served in full-time, self-contained classes at selected sites. Basic curriculum is compacted, and time saved through compacting is used for instruction in critical thinking and problem solving skills, creativity training and independent study projects. In addition, students participate in the Indiana Future Problem Solving Program. At buildings without full-time, self-contained classrooms, other alternatives are provided for gifted students.

Students identified for the Academic Challenge (A.C.) program at the middle school level may take classes specifically designed for highly able students in the academic areas of grammer, literature, science, social studies, and mathematics. The number of A.C. classes in which students participate is dependent on ability and motivation. In addition, a strand for students with exceptional art ability is offered.

Both high schools in the school system have developed programs for gifted students. Students gifted in the performing arts are challenged through drama and musical productions. The Advanced

Placement Program of the College Board is used in some subject areas and college credit courses are available through local universities. An independent study option is available for students to pursue areas of intense personal interest.

Evaluation Design and Methodologies

The overall approach to an evaluation of the Academic Challenge Program was eclectic in nature. Included in this evaluation design was a combination of elements borrowed from the professionally recognized and widely heralded Guba's "Naturalistic Inquiry Model" (Guba, 1978), Stufflebeam's "CIPP Model" (Stufflebeam, 1971), and Stake's "Responsive Model" (Stake, 1967). A primary objective for this evaluation effort was to build in a formal evaluation component (APPENDIX A - "Program Working Evaluation Design") which cut across all levels of the Academic Challenge program . The plan called for both internal evaluation activities which were the responsibilities of the Academic Challenge staff, and external evaluation activities which were conducted by an evaluation technical assistance team made up of professional associates from the School of Education at Indiana University-Bloomington.

The evaluation design was composed of both formative and summative elements. Formative evaluation was operationalized in terms of collecting data and/or information to make program improvements and refinements while the program was ongoing. The formative elements also focused on continuous and refined needs assessment, diagnosis, record keeping, informal measures and planning. Summative evaluation included the process of collecting data and information to determine the impact, effectiveness, or

success of the Academic Challenge program. The determination of whether the program was achieving its goals or objectives was considered summative. Traditionally, summative evaluation has often been viewed as being research-like in nature, or uncovering new findings and adding to the knowledge base; such was the case in the evaluation of given aspects related to the Academic Challenge program. Summative aspects also focused on teacher and student performances as well as other indices to determine the degree of successful program implementation.

The areas identified for evaluation purposes were: (1) planning and teaching concerns, (2) student peer interaction, (3) scholastic aptitude enhancement, (4) cognitive influences, (5) cognitive-affective interface influences, and (6) affective influences.

In order to conduct a summative evaluation of the Academic Challenge program, (Areas #4, #5, and #6), three mutually exclusive groups were assembled and examined at the middle school level. Group A consisted of Academic Challenge students who had been in the full-time, self-contained gifted and talented program throughout their elementary and middle school years. Group B was comprised of students currently taking at least one Academic Challenge class in the middle school, but who were not involved in the elementary gifted and talented program. Group C was made up of a control group of students who possessed comparable academic and cognitive skills to Groups A and B, but who had not participated in an Academic Challenge classroom at any level. Comparisons were made across these three groups concerning a variety of instruments measuring attributes of students (critical thinking skills, divergent thinking skills, study habits and attitudes,

self-concept, and locus of control). Also, for each measure administered to the three groups, A and B were aggregated and compared to Group C in an attempt to compare those involved in some type of Academic Challenge program against those not involved in any Academic Challenge program.

Academic Challenge students (Group I) were compared to an academically capable control group (Group II) of students at the elementary school level who had been selected for the Academic Challenge program, but had chosen not to participate in the program in a before and after setting (Area #3). Each group was given a pretest of verbal, nonverbal, and quantitative aptitude at the beginning of the school year. Toward the end of the school year, each student in each group, serving as his or her own control, was given a posttest measuring the same aptitudes. The two groups were compared to ascertain which group had a greater increase or degree of verbal, non-verbal and quantitative aptitudes during the year.

Before one can test any hypotheses about the data, the assumptions of the data must be given in order to select the most appropriate statistical tests. Because of attrition rates and test administration difficulties, the data received from the students were not equal in number across all groups being tested. Thus, any statistical test requiring equal sample sizes was eliminated from consideration. The data were also not assumed to have a normal distribution in each group since the population being studied consisted only of students at the "top end" of their class, and because of the small number of students in each group. Although the argument can be made for an interval scale among the data, the data were only assumed to be ordinal in scale.

The purpose of utilizing statistical tests of significance in this evaluation effort was to uncover if a "real" difference had occurred between the groups being compared. For purposes of this evaluation a "real" difference was interpreted to mean that the program staff was 95% (0.05 level of significance) sure that the observed difference between the groups was not due to chance occurrence. In testing for a difference between various attributes among the groups which contained students who had participated in full-time, self-contained elementary and middle school Academic Challenge program (Group A), students who had participated in classes in the middle school Academic Challenge program only (Group B), and students who possessed comparable academic and cognitive skills to Groups A and B, but who had not participated in an Academic Challenge classroom at any level (Group C), the Kruskal-Wallis one way analysis of variance by ranks test was chosen because it satisfied the assumptions for the data. In testing for a difference between pretest and posttest abilities among the Academic Challenge students (Group I) and the academically capable students (Group II), Wilcoxon matched paired signed ranks test was employed to test for significant differences. In testing for a difference between gain scores, the Mann-Whitney U-test was applied. The same test was used in attempting to uncover differences between groups regarding both pretest and posttest scores.

*****

PLANNING AND TEACHING CONCERNS

In an attempt to obtain an unbiased view of current classroom practices, it was decided that an external evaluator from a large nearby state university make a site visit for purposes of interaction and documentation interviews. The intent of the interviews was not to pose a summative evaluation situation but to probe for and collect information that would shed light on the daily functioning of the Academic Challege program and provide an opportunity for the respondents to raise questions about the planning and teaching processes. The decision to utilize an external interviewer suggested that a more balanced view of the Academic Challenge program might occur when such an individual was not biased by the daily operations or close kinships that usually develop among professional colleagues.

The individual selected as the interviewer was a professor of education at Indiana University - Bloomington. In addition to publishing a dozen or so refereed journal articles on the evaluation of and action research associated with gifted/talented education programs, this individual has served as an evaluation technical assistance consultant with programs in this state as well as in surrounding states. Presently, he is a member of a small team developing a master plan for gifted education in the Kingdom of Saudi Arabia. His vast background in gifted education, coupled with his past and present experiences with conducting needs assessments and evaluations, led to his selection to serve in this capacity.

Six questions were generated, locally validated, and posed to six highly knowledgable key informants during a one-day site visit (APPENDIX B - "Professional Staff Academic Challenge Interview Schedule"). The six interviews were structured to represent each person as a major stakeholder and key informant based on his/her experience with the Academic Challenge program, and a spokesperson for the two most concerned groups of stakeholders. Interviewed were four highly involved middle school teachers representing the major disciplines of mathematics, English, science and social studies, and two involved middle school building principals. Each interviewee was informed explicitly that he/she did not have to respond to any question which appeared offensive, or to which the interviewee was not in a position to respond. Each interviewee was told that all information conveyed during the interview would be held in strict confidence. At no time during a conference was there a school system central office administrator or Academic Challenge program staff member present. Interviews were usually conducted in a small private conference room. Each interview was approximately 30 to 45 minutes in duration. After approximately three to five minutes of verbal behavior that might be termed socializing, the interviewer posed the six questions. As the interviewee responded to a given question, the interviewer jotted down the response as near verbatim as possible. At the end of each interview, the evaluator asked each interviewee if there was other information that the interviewee would like to share, or if there were other questions which the interviewee had anticipated which had not been asked.

The judgmental data collected during the interviews of the selected individuals included statements of perceived priorities, values, opinions, and attitudes. Although interviewee perceptions may not correspond to the intentions or perceptions of those who designed the Academic Challenge program, they do represent what the individual perceives as happening. These perceptions represent reality to the individual, and may be far more important than what is supposed to be happening. The basic format for the remainder of this section will be to document the responses and consensus statements of the individuals in a readable format. The tone of the presentation will be that of documentation rather than that of evaluation or assessment. The intent has been to preserve as much of the "flavor" of the commentary and allow for as many inferences as possible. The following subsections represent the six major areas of concern, and coincide with the context of each of the six questions posed.

Teacher Preparation: IF INSERVICE WORKSHOPS WERE TO BE CONDUCTED, IN WHAT AREAS OF GIFTED EDUCATION CONTENT AND/OR PROCESS SHOULD THEY BE DESIGNED AND HOW SHOULD THEY BE DELIVERED?

Reactions toward teacher inservice preparation were mixed, especially when it came to providing sessions on timely and recent content or subject matter for involved teachers. Some viewed content updating as a need whereas others did not. The respondents agreed that workshops should be made available for those teachers who were not involved in the Academic Challenge program and interested parents. The interviewees supported the need for inservice preparation, but were quite cogent and rather specific in their explanations of what might be needed. Two respondents suggested that different inservice delivery mechanisms should be

developed. Workshops in areas other than content updating for involved teachers which were perceived as being possibly helpful included sessions on content interdisciplinary relationships and methods, and orientations toward other types of giftedness such as the performing arts, leadership, etc. Most respondents agreed that the area needing the most emphasis was the development of student problem solving situations in all content areas. The complete array of respondent comments can be viewed below:

> ...All teachers need to be informed about gifted and talented education. Workshops are still needed on identification methods where program inclusion should be based on student performance instead of potential performance. Parents could use some or more gifted and talented education orientation workshops. Teachers involved in the Academic Challenge program could use some inservice or updating in their subject matter areas because some students can handle advanced and more sophisticated content....Inservice is certainly necessary and needs to focus on appropriate methods for presenting content or subject matter; workshops might focus on different and timely content or subject matter in their fields....Inservice needs to be conducted on the identification and documentation of interdisciplinary relationships and linkages. Workshops might be conducted on composition as it relates to the teaching of social studies and the language arts. There is a need for more faculty interaction on feedback to students....Content updating is not really an issue. Inservice preparation is not really a priority; however, some very practical and pragmatic workshops might be helpful for some Academic Challenge program teachers....Workshops are needed to provide ideas and methods for differentiated instruction and curriculum development. The content background preparation of the involved teachers is very adequate. ...More teachers need to be involved in other types of G/T programs such as the performing arts or leadership areas; therefore, in order to do this teachers would need some inservice workshops. Inservice teachers not in the Academic Challenge program need more orientation workshops. Different inservice delivery mechanisms need to be developed. Involved teachers could use some workshops on timely topics for gifted students in their subject areas.

Perceptions of Differentiation: WHAT TYPES OF DIFFERENTIATED INSTRUCTION SHOULD OCCUR WHEN WORKING WITH GIFTED AND TALENTED STUDENTS? WHAT IS DONE IN ACADEMIC CHALLENGE PROGRAM CLASSES THAT MAKES THEM QUALITATIVELY AND/OR QUANTITATIVELY DIFFERENT THAN NON-GIFTED AND TALENTED CLASSES?

Of all the response sets, the concern for differentiated instruction generated the most discussion and commentary from the respondents. Several external (to the school setting) factors which influenced the types and amount of differentiated instruction were discussed. Consensus among the respondents highlighted the many attempts at differentiating instruction for the Academic Challenge program students. A wide array of diversified activities has been implemented. In all cases the basic (core) and necessary material in all subject areas for both the seventh and eighth grades is covered first before supplemental and enrichment activities occur. The basic material is covered at a very accelerated pace, usually a year's worth of content coverage can be implemented in a semester. Probably, the most frequent occurring mode of differentiated instruction is in the higher sophistication level of class discussions when dealing with issues and problems. It was noted quite emphatically by several respondents that individual or small group projects were only one means for providing differentiated instruction, and did not make up the bulk of the Academic Challenge program activities. Other types of differentiated instruction occurring quite often include problem solving activities, instructional field trips, microcomputer exercises, greater in depth coverage of content, more homework and out-of-class activities, coverage of more topics, and inclusion of cultural events. The more specific comments of the interviewees are as follows:

...Differentiation really occurs at the level of class discussion on a given topic where the tone of the discussion is at a much more sophisticated level. Individual assignments and projects are popular forms of differentiated instruction, but are not the essence of it. Academic Challenge students receive the core curriculum; however in addition, have extended and advanced activities....Presentation of the core content is quite accelerated and frees up time for differentiated situations for different groups of students....Challenges and problem solving activities need to occur more. Microcomputer delivery of instruction is not that well received by students because of software shortcomings and a low degree of student interaction....Differentiated instruction should occur in the areas of composition and vocabulary development. Time is provided in addition to the teaching of the core curriculum for greater and/or in depth coverage of vocabulary and Latin/Greek derivatives. External factors, such as "College Board Exams" influence the nature and magnitude of differentiated instruction. ...More content is covered in a shorter period of time. There is a greater exposure to more topics. More in depth comparative study is fostered among G/T students. Projects are emphasized but are not considered a main-line activity. Different cultural events are planned and implemented. Greater flexibility is built into the program in order that instructional field trips can be taken. For purposes of individualization students usually have choices from several alternatives....It should be noted that all Academic Challenge teachers also have the next level classes....Core content is compacted where the year's coverage is compressed into a semester. Students have the option to select two mini courses (9 weeks each) out of a pool of several mini courses. Mini units are also available which contain specific focus activities. Some units emphasize the integration of content across subject areas and really take on an interdisciplinary flavor....More problem solving activities need to occur. Home work assignments should be coordinated across the different subject areas. Parents need to provide input into the planning and instructional process.

Appraisal/Assessment Process: ARE THE STUDENT EVALUATION OR ASSESSMENT PROCEDURES USED IN THE ACADEMIC CHALLENGE PROGRAM CLASSES DIFFERENT THAN THOSE EMPLOYED IN REGULAR CLASSES? DO YOU HAVE ANY SUGGESTIONS ABOUT HOW METHODS OF EVALUATING STUDENT PERFORMANCE SHOULD BE CHANGED TO MEET THE NEEDS OF GIFTED AND TALENTED STUDENTS?

It was generally felt that student evaluation practices were similar to those employed with students not in the Academic Challenge program, with the exception of an occasional

nontraditional twist. This assessment emphasis is partially attributed to the gifted students being so "grade conscious." Often times, teachers make concerted efforts to deemphasize grades; however, students still prefer rewards of grades instead of learning for enjoyment or as an outcome of interest. Even though tests and examinations are the most common form of and the basis for grading, there are greater teacher expectations and higher student performance standards. The respondents recognized that areas other than test scores need to be used as the bases for grading. These include teacher observations and perceptions, student attitudes toward learning tasks, overall motivation, productiveness as a functioning group member, and technical skills acquisition. An appropriate emphasis is placed on peer evaluation, and the learning that takes place when assessing someone else's performance. This activity also allows students to function at the evaluation level (higher or apex) of the cognitive domain taxonomy. The candid remarks of the respondents toward this concern have been captured below:

> ...Procedures and techniques are basically the same. Grades are usually skewed in a higher direction. Teacher observations and recommendations are often used as the bases for grades. Grades are sometimes deemphasized. Observed performance is an important factor. Student interest and motivation are important considerations....If the screening process is valid, then the performance standards need to be high. Teacher expectations need to be higher. Both teachers and students need to exhibit a high degree of pride. Grading process does not fit a normal curve. Attitudes toward learning tasks are major factors that need to be taken into account when determining grades. Students still prefer rewards or grades instead of learning for fun or its own sake. Students themselves need to evaluate their own performances (can develop instruments themselves or respond to ones provided)....Non-letter grade assessments are essential to the program and student development. Group assignments and student-group assessments of these assignments can be very beneficial.

> It is essential that Academic Challenge students work in pairs or small groups and evaluate each others' assignments in terms of format and mechanics with or without the presence of criteria. Pupil appraisal of each others' work also facilitates their verbal and written expression and articulation....Evaluation techniques are similar to those used in non-G/T classes. Students are very concerned about grades. ...Tests and exams make up a bulk of the evaluation process and basis for grades. Students are very grade conscious. The evaluation process takes into account: (1) individual performance, (2) peer evaluation, and (3) group assessment. Peer evaluation involves, within small groups, students grading of each others' performance where expectations are well spelled out for students. Individual and group assessments can involve work done on projects....There is a need to deviate from conventional grading practices. In the Academic Challenge program, most, if not all, instruction is evaluated in a similar manner. Differences in student expectations need to be communicated.

Identification Procedures: WHAT ARE YOUR REACTIONS TO THE PRESENT STUDENT IDENTIFICATION PROCESS AT THE MIDDLE SCHOOL LEVEL? ARE THERE ANY NONTRADITIONAL METHODS FOR IDENTIFYING STUDENTS THAT COULD VALIDLY BE USED? HOW CAN THE PRESENT IDENTIFICATION PROCESS BE REVISED OR MODIFIED?

Consensus among the respondents revealed that the present student identification procedures or program inclusion criteria are too narrow and restrictive. Too much of an emphasis is put on standardized cognitive abilities/scholastic aptitude and basic skills achievement test scores. Divergent ideas surfaced among the interviewees with respect to nontraditional identification measures (other than standardized test scores) for selecting Academic Challenge program students; several of those mentioned were ability to remember, teacher nomination, self concept, parent nomination, learning motivation, peer nomination, locus of control, student self nomination, ability to reason, cognitive style critical thinking, persistence, intolerance for ambiguity, attitudes toward the subject area, self-actualization, and study habits

orientation. Of all the nontraditional procedures, teacher nominations and/or recommendations were consistently endorsed as the best of the nonstandardized program inclusion criteria; several respondents thought it might be a better method than both types of standardized test scores. Another area where respondents seem to express concern was about students gifted in one subject area and not in others. For students falling into this category, additional counseling and scheduling adjustments need to materialize in order to accommodate students who possess this type of giftedness pattern. The commentary recorded below reflects the present feelings of the respondents on this issue:

> ...Present process is too narrow and restrictive. Based too much on test scores. The process, however, forces much more one-to-one counseling of students. Identification process depends on the make-up of the substances (content and process) of the courses (present academically oriented.) Nontraditional identification measures' interpretation can vary from teacher to teacher in terms of a given student, and, therefore, may be perceived as being not reliable and invalid. ...Attitudes toward a given subject are very important. Teachers' recommendations and nominations are usually very reliable and valid. Some students might be gifted in one subject area and not in another, and, therefore, schedules need to be adjusted accordingly....Student ability to remember and reason are also important identification criteria. Teacher identification, and also peer identification, need to be included into the program inclusion process. Gifted students are not always gifted in all areas, and should only be scheduled into those Academic Challenge classes where identified as gifted. The bottom line is the ability to assimilate material regardless of what the traditional or the nontraditional identification methods might be. ...Identification process is quite valid. More students need to be identified as gifted in only one subject area. The most recent test scores need to be used for student placement instead of the scores attained much earlier, at the third grade level. Teacher judgment and recommendations need to augment test scores when appropriate....The identification process is constantly in a state of change. Teacher recommendations are quite valid. Next year's student identification procedures appear to be better (will deal with borderline cases)...Student past academic performance in given

subject areas is one of the better indicators. Student maturity levels and study habits can be reliable identification measures. Teacher recommendations should also accompany standardized test scores.

Participant Retention: HOW SHOULD LOW ACHIEVING STUDENTS IN THE ACADEMIC CHALLENGE PROGRAM BE DEALT WITH? WHEN SHOULD THESE STUDENTS BE RECOMMENDED FOR COUNSELING OUT OF THE PROGRAM? WHAT MIGHT BE THE ELEMENTS OF A FORMAL COUNSELING OUT PROCESS? WHAT ARE YOUR FEELINGS ABOUT DEVELOPING STRATEGIES FOR RETAINING GIFTED STUDENTS IN ACADEMIC CHALLENGE CLASSES DESPITE LOW ACHIEVEMENT?

Low achieving students are a real problem for Academic Challenge program teachers, and can consume much instructional and learning time. Some students are misplaced into the program academically, while others do not have the commitment for the challenges and/or the extra work. On the other side of the coin, low achievement may be associated with given generic types of learning tasks across the involved subject area; if this is the case, then once a weakness is diagnosed, remediation can be provided. Whether counseling to retain or remove a low achieving student, the parent is discerned by the respondents to be the key or central figure in the process, whereby the parent and teacher mutually agree upon a course of action for the low achieving student. In addition to counseling by a professional staff member(s), peer pressure and class norm setting can do much for student counseling out and retention. Of interest, when a student is counseled out of the program because of low achievement, the low achievement pattern usually continues when the student is placed in a lesser ability group. The common planning and interaction sessions for the Academic Challenge program teachers have been very helpful in terms of identifying, discussing and dealing with low achieving students. During these sessions, student problems are

diagnosed and remediation or recommended solutions hypothesized. A complete documentation of the respondents' thinking on these concerns is as follows:

> ...Counseling with the student and parent(s). Status seeking on the part of the parent might outweigh the instructional merits of counseling a student out of the program. Parents' attitudes and feelings really influence the counseling out process....Need to determine whether low achievement is consistent or just on a few tasks in terms of a given subject area. Counseling with the student and parent(s). Parents need to become more involved with the process. Student achievement can usually be addressed where a given weakness is diagnosed and remediation provided. A few students do not have a commitment for the extra work and many challenges....Parents really have a major influence on this process. In many instances, students who have been removed from Academic Challenge classes later perform worse (achieve lower) at (or in) a lesser ability level grouping. Counseling a student out of the program is usually a very agonizing process. ...Counseling with parents can be effective for retaining students (and improving performance) in the program. Administration might take a more active role in terms of counseling out or retaining students. ...Common planning sessions can be very helpful for this purpose. Most of the student pruning occurs in the seventh grade; therefore, fewer problems occur at the eighth grade level. Parents have a great deal of influence in keeping a student in the program, and usually have the final say. Peer pressure and group norm setting can do much for student counseling out and retention....Parent(s) and the teacher must mutually agree upon the course of action for the low achieving student.

Other Concerns and Issues: DO YOU HAVE ANY OTHER SPECIFIC CONCERNS ABOUT THE ACADEMIC CHALLENGE PROGRAM PLANNING AND TEACHING PROCESSES?

Because of the general nature and open-endedness of this question, the responses came from all directions and ran from one end of the spectrum to the other. A foremost "other concern" focused on funding for program elements and expansion from both internal (Board of Education) and external (State Education Department) sources. Along the same line, the respondents

discussed the need for additional support mechanisms such as teacher aides, co-teachers, more planning time, and travel funds to attend professional meetings. The interviewees reported a need for better communication between the Academic Challenge program teachers and non-program teachers. Instructional trials and tribulations need to be shared. Non-program teachers also need to be invited to visit (and observe) Academic Challenge classes. The interpersonal dynamics between Academic Challenge program classes and non-program students could become a problem and needs to be investigated. Gifted students are given an assortment of labels (sometimes undesirable) by non-program students. On the other side of the coin, some Academic Challenge students have developed elitist tendencies, and let other students and teachers know how much brighter and better they are from the non-program students. Below is a smorgasbord of comments made in response to this question and during the closing moments of the interview:

> ...Every teacher in the building should take at least one G/T course at either the undergraduate or graduate level. More G/T funds need to be allocated from the State Education Department....Involved teachers need some release time. Other support mechanisms such as a teacher's aide or co-teacher, more inservice preparation, or more planning and development time are needed. More of an emphasis should be put on student-developed learning materials, and the sharing of these materials with other students....More of an emphasis on interdisciplinary approaches within the program are necessary. There is a need for the common sharing of teaching ideas, classroom techniques, and student interaction patterns. More communication among G/T teachers and teachers who do not teach G/T students on what is going on in Academic Challenge classes. ...More common planning and preparation time for involved teachers....Non-G/T teachers really need to support the program. Instructional and administrative support are quite adequate and noteworthy....How do you prevent gifted students from taking on elitist tendencies? How do you prevent the academically gifted students from being labeled different?

STUDENT PEER INTERACTION

In order to get at the heart of the Academic Challenge (A.C.) program, the decision was made to interview some of the middle school students actually involved in the program. Although several quantitative tests and measures were given to the students, the evaluation team thought it was best to complement the quantitative evaluative measures with some inquiry focusing on qualitative evaluation. Once the decision was made to interview students in the program, the next question obviously follows of whether to use inside or outside interviewers. Although inside interviewers would be more familiar with the program, outside evaluators were chosen to conduct the interviews in an attempt to lower the possible level of bias on the part of the interviewer. A team of two outside evaluators was chosen to conduct the interviews. One of the members was a faculty member at Indiana University with a strong background in gifted and talented education. The other member of the team was a graduate student with a background in counseling and interviewing techniques, who has also worked extensively with the other member of the evaluation team.

Nine students were interviewed in three separate groups of three students each. Thus, even though there was a team of two interviewers, there were still more students present than interviewers to keep the students from feeling overwhelmed by the evaluators. The total group of students consisted of six 8th graders and three 7th graders. Five of the students were male, and four were female. These ratios were representative of the total group of students in the Academic Challenge program. The

interviews were conducted during a single day visit at the two middle schools within the Bartholomew Consolidated School Corporation.

Five questions were generated and locally validated by a panel of gifted/talented experts (APPENDIX C - "Academic Challenge Student Peer Interaction Schedule). Students were told that they did not have to respond to any question that was asked for which they did not have information or were not comfortable with. They were also informed that their answers would be kept in strict confidence, would not be shared with their teachers and would in no way affect their grades. They were also informed that there were no right or wrong answers, and were encouraged to answer as honestly and openly as possible. Interviews were conducted in a private conference room and ran approximately 45 minutes long for each session of three students each. The team of evaluators spent approximately five minutes "socializing" with the students in an attempt to "break the ice" before proceeding with the interview schedule. At the beginning of each session and at several key points during each session, the students were reminded that they were representing the larger group of students in the Academic Challenge program. Thus, they were asked to share their personal feelings, but were also often asked to comment on how they thought other students in the Academic Challenge program felt about certain salient issues. During the three sessions with the students, an attempt was made to validate certain answers given by cross checking the information with other students, especially in specific situations where certain information gleaned from a student seemed rather "surprising."

The judgmental data collected from the students included information on the students' self-image, benefits and limitations of peer interaction, the program's contribution to learning, elitist tendencies, perceived quality of the teachers in the program, likes and dislikes of the program, and overall satisfaction with the program. Caution needs to be given regarding how representative the students were of the overall student population of the program. Each of the students interviewed stated they were at or near the top of both their Academic Challenge program class and school class in standing.

From this point on, the formatting of the results will show both a summary of the responses to each question, and verbatim responses from the student, to give an overall flavor of the students' reactions to each question.

Self Image Development: HOW DO YOU FEEL ABOUT YOURSELF AS A RESULT OF BEING IN THE ACADEMIC CHALLENGE PROGRAM? HAS THE PROGRAM MADE YOU FEEL BETTER ABOUT YOURSELF?

All of the students interviewed seemed to have a positive self-image. In order to get a more accurate assessment of the entire Academic Challenge program student body, respondents were asked if they knew anyone in the program who did not feel good about themselves. Respondents estimated that about 20% of the students in the Academic Challenge program had poor self-images as evidenced through a lack of involvement, participation or interest in the program. All of the students interviewed felt that grades were a major factor in determining self-image. The majority of the students felt that the Academic Challenge program had contributed to their self-worth. Actual comments regarding the self-image of the students in the Academic Challenge program are shown below:

> ...When you achieve something harder, it makes you feel better about yourself....I'm proud I made it in the program....Some of the other students are afraid to try anything....The competition in the program is somewhere between cut-throat and healthy, but it always gets us to work harder....Grades are so important....If I don't get an A, I feel awful....If there were no grades, it would completely shoot down all of my enthusiasm....There's lots of comparing of report cards....We're all in competition to get the highest grade....I don't think I'd want to be valedictorian, there's too much pressure....We view education as more important than the other students.... Other students expect a lot out of you, and that's good....The program builds confidence.

On-Task Productivity Enhancement: DO YOU FEEL YOU LEARN BETTER AS A RESULT OF WORKING WITH YOUR CLASSMATES IN THIS ACADEMIC CHALLENGE CLASS? WHY?

The overwhelming majority of the students felt that the program had enhanced their learning in two general ways. First, students felt that the type of assignments given in the Academic Challenge program classes were much more conducive to learning than in the non-Academic Challenge program classes. A few of the students interviewed had recently been in and out of the Academic Challenge program across semesters and could readily compare the level of instruction and assignments in the two types of classes. The second general area that contributed to learning was the level of discussion in the Academic Challenge program classes. Students seemed to get much more out of the discussion times in the Academic Challenge program classes. A few of the students felt that the increased level of work was too great for them. One student felt that there was pressure not only on him, but also the teachers to work faster. Evidence for the specific ways in which learning is enhanced through the Academic Challenge program classes can be seen below from the comments of the students:

> ...I've learned a lot more in the A.C. program. We have more group projects. Projects are more important than what I used to do....We compared the book Animal Farm to the Russian Revolution; other groups just read the story....I spend more time on worthwhile items....The teachers do more in our classes than just point out facts....Our class spent nine weeks exploring the concept of Manifest Destiny. ...We have a lot more fun doing the projects....Class is more of a learning experience than just busy work. ...I kept on yawning in the other classes....Some kids couldn't adjust if they had to go back in the other classes. They wouldn't be challenged and wouldn't get enough attention from the teachers.... Our classes come up with a much finer finished product....Some classes just have to keep their papers in a folder to get an A....I have more essay tests. I guess that's good for later....There's hardly any discussion in the non A.C. classes.... The people in the A.C. classes are more interested in the topics being discussed. Many of them are easier to talk to about the subjects....I'd rather work on a project with A.C. kids....We have a lot more assignments than the other classes, but we don't get as much busy work....Sometimes I feel like I don't live up to the teachers' expectations.... The teachers expect you to be perfect. They don't expect us to ever get into trouble....We work so hard, sometimes I think we're all gonna explode!

Acceptance of Peers: DO YOU LIKE WORKING ALL DAY WITH YOUR ACADEMIC CHALLENGE CLASSMATES ON PROJECTS, ASSIGNMENTS AND/OR ACTIVITIES? WHY OR WHY NOT? WHAT ARE YOUR FEELINGS ABOUT WORKING WITH CLASSMATES WHOSE ABILITIES ARE SIMILAR TO YOURS?

Most of the students stated that the majority of their friends are in the Academic Challenge program with them. This seemed to be a natural consequence of the amount of time spent with others in the program rather than rejecting students not involved in the program. When faced with the question of choosing a boyfriend or girlfriend inside or outside of the program, the students responded that a student's involvement in the Academic Challenge program would have no effect on that decision. Several students expressed the concern that the amount of homework often

detracts from their social life or involvement in other non-academic, extracurricular activities. The wide variety of comments can be seen below.

> All of my friends are in the A.C. classes or at least in a couple of A.C. classes....There's nothing wrong with anybody else, I just know the kids in the A.C. classes better....It's just another program. ...We don't feel part of something special....It's only a few of our classes that have changed....I don't have as much to talk about with kids outside the program....I get tired of seeing the same people day after day....My social life might be better otherwise outside of the program....It doesn't make any difference liking someone out of the program....I'd rather choose people from the general population to date....I missed some soccer practices because I had too much homework. ...I wanted to go on a retreat with the youth group, but didn't because I had too much homework....I study every weekend, from 7:00 a.m. to 10:00 p.m.

Elitist Tendencies: DO YOU FEEL THAT YOU ARE DIFFERENT BY BEING IN AN ACADEMIC CHALLENGE CLASS? IF SO, HOW?

The majority of the students did not exhibit elitist tendencies during the interviews. In fact, a few were outwardly opposed to the thought of being seen as different from anyone else. Most of the students interviewed had also been in the Academic Challenge program in the elementary schools, which is a full-time, self-contained program. As students recalled this earlier experience in the elementary program, they expressed very uncomfortable feelings about being separated from the rest of their peers for academic subjects. They liked the notion of having more interaction with non-Academic Challenge students during parts of the day in the middle school. There seemed to be mixed feelings concerning the labeling that is put on the program. The multitude of responses appears below:

> ...I don't feel like a snob or anything...Some people say I have trouble relating to others, but they just say that because I'm in the program.... Sometimes people think you're a snob and sometimes people are threatened by you....A few people in the program are snobs, but they are in the minority.... Most people in the program do not put themselves above others....Some people say, "I feel stupid around you."...Academically I'm better, that's all. Different people are better at different things.... A lot of others think we're nerds....I felt a lot different being separated in the elementary school. I like it better this way....I don't like being labelled A.C. I don't like the term gifted and talented either, it's too flashy....The labels don't mean as much here. Some kids don't even know the A.C. program exists.

Other Concerns and Issues:

As the interviews progressed, the students discussed more and more salient items with the evaluators. Two important areas kept re-occurring that were not on the original agenda list. These areas were the quality of teachers in the Academic Challenge program, and the overall likes and dislikes of the students. The majority of the students were very proud of the teachers involved in the Academic Challenge program. They stated that the best teachers in the school were teaching in the Academic Challenge program. Regarding the students' likes and dislikes, they were varied, but did centralize around curriculum and organizing concerns. Finally, at the end of each group session, the interviewers asked each group if they would vote to continue the Academic Challenge program if the decision were up to them. The response to the question was a resounding yes from each group. Some of the miscellaneous comments can be viewed below:

> ...There's too much in the curriculum. We're always behind, no matter what we do....I love the mini-courses....They expect too much out of the teachers and that's transferred to us....Many teachers leave everything to the end of the year.

...Teachers like to teach all of the fun stuff and put off everything else....We get all our assignments piled up rather than spread out....Can't they coordinate some of the assignments between classes?...The best teachers are pretty much in the A.C. program. They know how to make things interesting....The teachers in the A.C. program are more modern. They use more up to date examples....Some A.C. teachers will let you teach the class on an interesting topic one day....A.C. teachers say things like, "I'll look it up if I don't know the answer," or some will have you look it up and tell you how....A.C. teachers are not always the most liked by all students because they are known for giving more homework....If I was making the decision, I would definitely continue the program. I was not in the program last year, and I was bored to death....I'd get B's and C's in the other classes, because I wouldn't feel challenged....I've developed much better study habits in the A.C. classes. I've also learned how to use all of my time more efficiently....In the other classes I was the only one who talked and I felt weird....I was expecting something a lot worse at the beginning of the year, but it turned out to be great.... I'll be better prepared for college. I'll know how to cope with college better.

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SCHOLASTIC APTITUDE ENHANCEMENT

There are special cognitive abilities or scholastic aptitude traits involved in performing various learning tasks in most school subjects. These abilities are not regarded as static intellectual traits, but traits that are sensitive to instruction. Therefore, student performance is a function of schooling as well as individual characteristics. These cognitive abilities can be altered through instruction. Such abilities are thought to develop in two ways. First, they change as the student's intellect matures. To be more specific, as students develop, their thinking becomes increasingly more abstract, and this developing ability influences school performance. Second, the learning experiences, especially those in the Academic Challenge program, should bring about change (an increase) in these cognitive processes. School related tasks challenge the individual to think in new ways. As these new thinking processes are used with increasing success, higher levels of reasoning skills are developed within students.

The scholastic aptitude or cognitive skills associated with academic performance are traditionally classified into three areas: verbal, quantitative and nonverbal. Verbal skills are the basis for student performance in all academic areas requiring reading and language. Quantitative skills form a necessary base for student performance in arithmetic, and later in algebra and the sciences. Nonverbal skills are not directly embedded in school performance but are needed in geometry, science, and geography.

In order to measure students' cognitive or scholastic aptitude enhancement, the "Developing Cognitive Abilities Test" (Beggs & Mouw, 1980) was administered to a group of upper elementary school

(Grades 4,5,6) Academic Challenge program students (Student Group I) and a nonparticipant comparison group (Student Group II, made up of students who were invited to participate in the Academic Challenge program, but chose not to) in a pre-post test situation (APPENDIX D - "Developing Cognitive Abilities Test"). The 80-item "Form 5/6A" in a four option multiple choice format takes approximately 50 minutes to administer. Raw scores can range from 0 to 80. Reliability of the "Developing Cognitive Abilities Test" (DCAT) has been established in two forms. Internal consistency reliability coefficients using a KR-20 technique range from 0.88 to 0.89 for the entire test, 0.84 to 0.89 for verbal aptitude, 0.60 to 0.68 for quantitative aptitude, and 0.78 to 0.82 for nonverbal aptitude. Stability reliability in terms of test-retest reliabilty with a two week interval between testing ranged from 0.73 to 0.78 for the entire test, 0.76 to 0.81 for verbal aptitude, 0.43 to 0.61 for quantitative aptitude, and 0.38 to 0.45 for nonverbal aptitude. Validity of the DCAT has been established in terms of content validity.

The DCAT was administered to a group of 234 students in grades 4, 5, and 6 in the Academic Challenge program and an academically capable comparison group of students who were invited to participate in the Academic Challenge program, but chose not to do so, during October as the pre-measure, and during May of the same academic year as the posttest. In addition to reporting on means and standard deviations, Wilcoxon matched pair signed ranks tests were utilized to test for pre-post significant aptitude, quantitative aptitude, and nonverbal aptitude. Difference scores were compared between the two groups using the Mann-Whitney U-test.

Verbal Aptitude

Students in Group I (Academic Challenge group) improved over the course of the year with respect to verbal aptitude (Table 1). The students' average posttest score (M = 88.58, SD = 11.98) was significantly higher than the students' average pretest score (M = 83.62, SD = 15.10). This mean score difference of 4.96 was significant at the 0.00001 level. Students in comparison Group II (non-Academic Challenge group) did not improve in verbal aptitude over the course of the year. Their posttest score (M = 81.35, SD = 22.22) was lower than their pretest score (M = 82.66, SD = 17.15), although this negative difference was not statistically significant.

The difference scores for the two groups were compared using the Mann-Whitney U-test. The difference scores for Group I (M = 4.96) were significantly higher than the difference scores for Group II (M = -1.31). The results revealed that the Academic Challenge program was influential in enhancing the verbal aptitude of the students involved in that program, while the control group students did not significantly improve their verbal aptitude.

Non-Verbal Aptitude

The posttest scores (Table 1) for students in Group I (M = 87.24, SD = 13.89) were significantly higher than their pretest scores (M = 80.62, SD = 19.22). The Wilcoxon Matched Pairs test revealed a significant difference ($p < 0.00001$) between these two sets of scores. Students in Group II also improved in non-verbal ability as their posttest scores (M = 78.91, SD = 20.29) were compared to their pretest scores (M = 69.00, SD = 30.15). These results show that both the students in the Academic Challenge program and the students in the comparison group improved in non-verbal skills during the evaluation period.

TABLE 1

UPPER ELEMENTARY SCHOOL PRE-POST AND PARTICIPANT/NONPARTICIPANT COMPARISONS WITH RESPECT TO SCHOLASTIC APTITUDE ENHANCEMENT

Measures / Aptitudes	Pretest		Posttest		Mean Difference Score	Wilcoxon Mann-Whitney U-Values	
	M	SD	M	SD		Pre/Post Diff.	Significance
Participant Group (A.C.) Group I (N = 234)							
Verbal	83.62	15.10	88.58	11.98	4.96	4.49	0.00001
Quantitative	69.57	26.21	83.92	17.97	14.35	6.61	0.00001
Non-Verbal	80.62	19.22	87.24	13.89	6.62	5.62	0.00001
Knowledge	77.40	14.12	85.97	12.72	8.57	9.42	0.00001
Comprehension	73.77	14.15	84.09	10.93	10.32	9.58	0.00001
Application	67.35	13.27	75.03	12.23	7.68	7.95	0.00001
Analysis	67.29	16.38	77.49	13.45	10.20	7.66	0.00001
Synthesis	55.24	19.01	66.81	17.97	11.57	6.89	0.00001
TOTAL	85.18	14.11	91.63	11.35	6.45	7.33	0.00001
Comparison Group Group II (N = 23)							
Verbal	82.66	17.15	81.35	22.22	- 1.31	.50	NS
Quantitative	59.44	28.73	74.61	24.30	15.17	1.90	NS
Non-Verbal	69.00	30.15	78.91	20.29	9.91	1.99	0.0464
Knowledge	76.47	15.99	84.65	15.81	8.18	2.74	0.0062
Comprehension	68.81	14.66	80.43	13.89	11.62	3.24	0.0012
Application	63.87	14.57	69.70	19.82	5.83	2.00	0.0458
Analysis	62.69	20.90	71.61	14.83	8.92	2.37	0.0179
Synthesis	50.34	22.08	56.00	21.32	5.66	1.05	NS
TOTAL	78.62	19.14	82.09	20.50	3.47	.73	NS

Quantitative Aptitude

An application of the Wilcoxon Matched Pairs test showed that students in the Academic Challenge program improved in quantitative aptitude over the course of the year (Table 1). The posttest scores for Group I ($M = 83.92$, $SD = 17.97$) averaged 14.35 points higher than their pretest scores ($M = 69.57$, $SD = 26.21$). This difference was statistically significant ($p < 0.00001$). The posttest scores for Group II ($M = 74.61$, $SD = 24.30$) averaged 15.17 points higher than their pretest scores ($M = 59.44$, $SD = 28.73$). However, this difference was not statistically significant. Based upon these results, it can be inferred with confidence that the students in the Academic Challenge program improved in their quantitative ability. However, it cannot be hypothesized with certainty that the students in the comparison group improved significantly in their quantitative ability.

Abstract Thinking Skills

By conducting the Wilcoxon Matched Pairs test, it was demonstrated that students in both groups scored higher on their posttest with respect to "knowledge" than their pretest scores (Table 1). Students in Group I improved by an average of 8.57 points compared to an average difference of 8.18 points for Group II. Although Group I had a higher degree of improvement than Group II, this difference was not shown to be significant as a result of the Mann Whitney U-test. Group I had an average posttest score of 85.97 ($SD = 12.72$) compared to an average pretest score of 77.40 ($SD = 14.12$). Group II had an average posttest score of 84.65 ($SD = 15.81$) compared to an average pretest score of 76.47 ($SD = 15.99$).

Students in both groups scored significantly higher (Table 1) at the end of the testing period than the beginning with respect to "comprehension." Students in Group I had higher posttest scores (M = 84.09, SD = 10.93) than pretest scores (M = 73.77, SD = 14.15), as did students in Group II (posttest: M = 80.43, SD = 13.89; pretest: M = 68.81, SD = 14.66).

Regarding "application" skills, students in Group I scored higher (Table 1) on the posttest (M = 75.03, SD = 12.23) than the pretest (M = 67.35, SD = 13.27). Likewise, students in Group II scored higher on the posttest (M = 69.70, SD = 19.82) than the pretest (M = 63.87, SD = 14.57). These differences were shown to be significant as a result of using the Wilcoxon Matched Pairs test. Although Group I had a higher average difference score (M = 7.68) than Group II (M = 5.83), this difference was not shown to be significant at the 0.05 probability level.

Both groups improved their "analysis" skills during the evaluation period (Table 1). The students in Group I had higher posttest scores (M = 77.49, SD = 13.45) than pretest scores (M = 67.29, SD = 16.38). Although students in Group II also had higher posttest scores (M = 71.61, SD = 14.83) than pretest scores (M = 62.69, SD = 20.90), the average difference for Group II (M = 8.92) was lower than the average difference for Group I (M = 10.20). However, this difference was not shown to be significant at the 0.05 probability level after the utilization of the Mann-Whitney U-test.

Regarding the final dimension of abstract thinking skills, "synthesis," Group I had higher posttest scores (M = 66.81, SD = 17.97) than pretest scores (M = 55.24, SD = 19.01). This

difference was significant at the 0.05 probability level using the Wilcoxon Matched Pairs test (Table 1). Although Group II had higher posttest scores (M = 56.00, SD = 21.32) than pretest scores (M = 50.34, SD = 22.08), this average difference of 5.66 was not shown to be significant. It might be inferred that the magnitude of this difference could have appeared by chance occurrence.

In concluding, students in Group I improved on every factor related to the abstract thinking skills dimension. Students in the comparison group improved significantly on four of the five factors related to abstract thinking. Students in the comparison group did not significantly improve on the synthesis factor.

Overall Academic Aptitude

In regard to overall academic aptitude (Table 1) which incorporates aspects of both cognitive abilities and Bloom's taxonomy, Group I showed higher posttest scores (M = 91.63, SD = 11.35) than pretest scores (M = 85.18, SD = 14.11). This difference (M = 6.89) was significant at the 0.05 probability level according to a Wilcoxon Matched Pairs test. Although Group II also showed higher posttest scores (M = 82.09, SD = 20.50) than pretest scores (M = 78.62, SD = 19.14) with respect to total academic aptitude, this difference was not shown to be significant as a result of employing the Wilcoxon Matched Pairs test.

It can be inferred that the Academic Challenge program had a significant influence on the total academic aptitude of the students in this program. However, it cannot be hypothesized with certainty that students in the control group improved significantly in regard to total academic aptitude.

Scholastic Aptitude Enhancement in Retrospect

Students in the Academic Challenge program showed improvement over the course of the evaluation period on every scholastic aptitude dimension. It can be inferred on the basis of these findings that the Academic Challenge program is comprehensive in its scholastic domain. The various programs serve to enhance the overall academic aptitudes of the students. Students in the comparison group also showed improvement in non-verbal thinking skills, and in several factors regarding abstract thinking skills. Students in this group did show significant improvement along the factors of verbal and quantitative aptitude, synthesis skills, and overall academic aptitude.

In all cases, the degree of significance was greater for the students in the Academic Challenge program than in the comparison group with regard to differences between posttest and pretest scores. This variability may be due in part to a larger group of students in the Academic Challenge program (N = 234) than in the comparison group (N = 23). All scores shown on the pretests and posttests are percentile ranks, in an effort to add to the interpretability of the findings. It is important to note that students in both groups started and finished above the national average on every dimension tested.

The hypothesis behind the selection of the academically capable comparison group was that students in this group would not be significantly different in academic aptitude from students in the Academic Challenge program, since these students were invited to participate in the Academic Challenge program but chose not to do so. To further test this hypothesis, Mann-Whitney U-Tests were performed to compare the pretest scores of the students in the two

groups on every factor of academic aptitude. The pretest scores for the two groups were found to be significantly different on only two factors. The students in the Academic Challenge program began the year with significantly higher scores on non-verbal ability (M = 80.62, SD = 19.22) and total academic aptitude (M = 85.18, SD = 14.11) than students in the comparison group (non-verbal: M = 69.00, SD = 30.15; total academic aptitude: M = 78.62, SD = 19.14).

One method of trying to decide which of the two groups improved more on a particular factor is to test for significant differences between the gain or difference scores of the two groups. This method was completed, and significant differences were found between the two groups with respect to only one factor, namely verbal aptitude. Students in the Academic Challenge program had higher gain scores (M = 4.96) than students in the comparison group (M = -1.31).

A second method of trying to decide which of two groups improved more on a particular factor is to test for significant differences between the posttest scores. This can only be done on those factors that were not significantly different to begin with. Thus, this method was applied to every factor except non-verbal and total academic aptitude. Significant differences were found on the single factor of synthesis skills. Students in the Academic Challenge program scored significantly higher on this factor (M = 66.81, SD = 17.97) on their posttest scores than students in the comparison group (M = 56.00, SD = 21.32).

Thus, it can be inferred from the two methods applied above that students in the Academic Challenge program possessed a greater degree of improvement in the verbal aptitude and synthesis skills.

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COGNITIVE INFLUENCES

Perhaps the greatest concern associated with gifted education programs is that of students' cognitive growth. Both proponents and adversaries often question whether a given gifted education program is really making a difference or is having an impact with respect to its participants. The two cognitive dimensions most frequently challenged are (1) student critical thinking skills, and (2) student divergent (creative) thinking skills. The influence of the Academic Challenge program on these two dimensions was investigated by way of comparisons among cognitive attributes of students in three treatment groups: Group A - students presently in the middle school Academic Challenge program who had also participated in the elementary Academic Challenge program; Group B - students presently in the middle school Academic Challenge program who had not participated in the elementary Academic Challenge program; Group C - students who possessed comparable academic and cognitive skills to Groups A and B, but who had not participated in an Academic Challenge classroom at any level.

In the case of both critical thinking skills and divergent thinking skills, the results have been discussed in terms of means and standard deviations for each group. Also, the nonparametric statistical technique known as the Kruskal-Wallis one way analysis of variance by ranks was utilized to test for statistically significant differences among these groups.

Critical Thinking Skills Development

The validated and published "Watson-Glaser Critical Thinking Appraisal" (Watson & Glaser, 1980) is related to several concepts

of critical thinking, including: (1) the ability to define a problem, (2) the ability to select pertinent information for the solution of a problem, (3) the ability to recognize stated and unstated assumptions, (4) the ability to formulate and select relevant and promising hypotheses, and (5) the ability to draw valid conclusions and judge the validity of inferences. The developers of the instrument view critical thinking as a composite of attitudes, knowledge and skills (APPENDIX E - "Watson-Glaser Critical Thinking Appraisal"). The five subsets of critical thinking are: (1) inference - discriminating among degrees of truth or falsity of inferences from given data, (2) recognition of assumptions - recognizing unstated assumptions or presuppositions in given statements or assertions, (3) deduction - determining whether certain conclusions necessarily follow from information in given statements or premises, (4) interpretation - weighing evidence and deciding if generalizations or conclusions based on the data are warranted, and (5) evaluation of arguments - distinguishing between arguments that are strong and relevant and those that are weak or irrelevant to a particular question at issue.

The instrument is a test of power rather than speed, and normally takes about 40 minutes to administer. The maximum score for the test is 80. Split-half reliability coefficients for the test range from 0.69 to 0.85. After administering the test to a group of students over time (N = 96), a correlation value of 0.73 was obtained indicating reasonable stability of the measure over time. The content validity of the instrument has been tested and proven in several different settings. The instrument has been shown to relate to measures of academic achievement and general intelligence, indicating high concurrent validity for the test.

Students in Group A achieved the highest score (Table 2) on critical thinking skills (M = 55.29, SD = 7.92) as compared to Group B (M = 53.96, SD = 6.51) and Group C (M = 49.07, SD = 6.83). The Kruskal-Wallis one way analysis of variance was not significant for the groups. However, after combining both groups involved in the Academic Challenge program, either full- or part-time, and comparing this newly formed group with Control Group C, the difference was significant at the 0.05 level. Combined students in the Academic Challenge program (M = 54.42, SD = 6.95) scored significantly higher than students not involved in the program (M = 49.07, SD = 6.83). At this point in the students' academic careers, the academically challenged students are better able to analyze problems in a scientific manner.

It is also important to note that all three groups scored higher on the average than the national norm for ninth graders (M = 42.6, SD = 8.7). The average student in the control group (Group C) scored in the 80th percentile, while the average student in Groups A and B scored in the 90th percentile.

Divergent Thinking Skills Development

The validated and published "Torrance Tests of Creative Thinking" (Torrance, 1974) measures a student's ability to think creatively in a wide variety of ways (APPENDIX F - "Torrance Tests of Creative Thinking"). The developer of the test has defined creativity as: (1) the process of becoming sensitive to problems, deficiencies, disharmonies, and so on; (2) identifying the difficulty; (3) searching for solutions, making guesses, or formulating hypotheses; (4) testing and retesting these hypotheses

TABLE 2

COMPARISON OF MIDDLE SCHOOL STUDENT COGNITIVE, COGNITIVE-AFFECTIVE, AND AFFECTIVE DEVELOPMENT

Groups / Attributes	(Group A) Full-Time Self-Contained Program While In Elementary & Middle School (N = 14)		(Group B) Middle School A.C. Only (No Elementary A.C. Classes) (N = 27)		(Group C) Academic Capable Comparison Group (No Elementary or Middle Sch. A.C. Classes) (N = 14)		Kruskal-Wallis Significant Difference Value p < 0.05
	M	SD	M	SD	M	SD	
Critical Thinking Skills	55.29	7.92	53.96	6.51	49.07	6.83	NS
Divergent Thinking Skills	121.79	14.49	115.78	15.67	118.43	19.65	NS
Study Habits	42.23	14.10	41.00	16.20	46.00	17.36	NS
Study Attitudes	42.46	18.00	45.83	11.72	52.78	17.70	NS
Study Orientation	84.69	30.04	86.83	25.28	98.78	34.24	NS
Self-Concept Self-Esteem	71.14	14.81	62.30	10.59	71.07	12.10	p < 0.05
Locus of Control	92.36	14.89	88.93	21.54	98.64	16.03	NS

and possibly modifying and retesting them; and (5) finally communicating the results. The test questions students in light of the developer's definition, through several activities such as product improvement, unusual uses, unusual questions, "just suppose" picture construction, incomplete figures, and repeated figures. Split-half coefficients of reliability for the battery of test activities range from 0.59 to 0.88. Eherts (1961) reported a test-retest reliability coefficient of 0.88. Several other researchers have validated the content and construct validity of the instrument.

Students in Group A exhibited the highest form of creativity (M = 121.79, SD = 14.49) or divergent thinking (Table 2). Students in Control Group C scored second highest (M = 118.43, SD = 19.65), while students in Group B scored lowest (M = 115.78, SD = 15.67). Results from a Kruskal-Wallis one way analysis of variance test did not prove to be significant at the 0.05 level. These composite scores measure the total amount of creative energy a person has available or is willing to use.

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COGNITIVE-AFFECTIVE INTERFACE INFLUENCES

Comparisons between Group A, B, and C students were made using a dimension which falls in the "gray area" between the cognitive and affective domains. The variable selected for examination was that of student study habits and attitudes. This related dimension was added to complete the evaluation in terms of comparing the three groups. In addition, both teachers and parents were concerned about this matter, since it is a critical interface between the school and the home.

Study Habits and Attitudes

The published and validated "Survey of Study Habits and Attitudes" (Brown & Holtzman, 1984) was chosen as the main source of cognitive-affective information about the students. (APPENDIX G - "Survey of Study Habits and Attitudes"). This instrument measures study methods, motivation for studying, and certain attitudes toward scholastic activities which are important in the classroom. The reported total score, labeled "study orientation," is obtained from adding the students' scores on study habits and study attitudes.

After several attempts to measure the concurrent and construct validity of the test, it has been concluded that the instrument measures traits which play an important role in academic success, but which are not assessed by a scholastic aptitude test. Test-retest (stability reliability) coefficients over a fourteen week interval ranged from 0.83 to 0.88. Internal inconsistency reliability coefficients for the four subscales ranged from 0.87 to 0.89. The test takes approximately 20 to 35 minutes to administer, and the maximum possible score for study orientation is 200.

Students in Comparison Group C had the highest (Table 2) study orientation score (M = 98.78, SD = 34.24) as compared to Group A (M = 84.69, SD = 30.04) and Group B (M = 86.83, SD = 25.28). The Kruskal-Wallis test did not reveal any significant differences among the three groups at the 0.05 level. All three groups fell below the national mean score of 100.2 for grades 7-8-9 based upon 5,425 cases from thirteen school systems.

One possible explanation as to why the students involved in the Academic Challenge program, Groups A and B, scored lower on study orientation is that they have been challenged to a greater extent than the comparison group. This greater challenge might have influenced negative attitudes and orientations toward studying because of the higher cognitive nature of assignments (could lead to much frustration) and overall quantity of assigned tasks. The comparison group may have somewhat of a distorted view as to the ease and payoffs of studying.

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AFFECTIVE INFLUENCES

The two dimensions selected for investigation in the affective domain were self-concept and locus of control. In order to seek out whether the gifted education programs were having any influence on the psychological well-being of the students, a mini-experimental setup was designed to examine the dimensions of self-concept and locus of control. Comparisons (Table 2) were made among the three groups in terms of their self-concept and locus of control. Mean scores and standard deviations have been reported for the three groups. In addition, the nonparametric Kruskal-Wallis one way analysis of variance by ranks was employed to test for statistically significant differences among the three groups.

Self-Concept Development

The validated and published "Revised Janis-Field Feelings of Inadequacy Scale" (Eagly, 1967) was utilized to measure the self-concept or self-esteem of the three groups of students (APPENDIX H - "Revised Janis-Field Feelings of Inadequacy Scale"). Each item requires the student to react to Likert-type scales where a "1" represents a low response and a "5" represents a high response. This instrument, which contains 20 items, takes about 5 to 10 minutes to administer. The score range runs from a low of 20 to a high of 100. A higher score on this instrument would be reflective of a more desirable self-concept or self-image. Eagly (1967) reported split-half reliabilities of 0.72 and 0.88 in two separate research studies. With respect to

establishing validity for the instrument, Hamilton (1971) has been the most active in attempts to validate this instrument in reference to convergent validity, discriminant validity, and predictive validity.

Middle school students in Groups A ($M = 71.14$, $SD = 14.81$) and C ($M = 71.07$, $SD = 12.10$) had higher self-concept scores than students in Group B ($M = 62.30$, $SD = 10.59$). The Kruskal-Wallis test revealed that there was a significant difference ($p < 0.05$) between the three groups on this highly relative attribute (Table 2). After an overall difference was found between the three groups, each group was compared individually to the other two groups. These individual comparisons revealed that Groups A and C were indeed statistically different from Group B, but that Groups A and C were not statistically different from each other.

These results should not be surprising. Students not involved in the program (Group C) have no specific reason to score low on the attribute of self-concept/self-esteem. Students involved in the Academic Challenge program since elementary school days have had time to adjust to any feelings of being "different" from students not involved in the program. However, students involved in only a few Academic Challenge classes (Group B) and not having the advantage of being socialized into the program during their elementary school years may not have completely adjusted to the idea of being "different" in some ways from other students. While they may at times feel "intellectually" superior to other students, their self-concept level may be lower as a result of comparing themselves to other students in non-intellectual areas such as athletics and sociability. It should also be noted that, while

Group B exhibited a lower self-concept score than the other two groups, all three groups possessed above average self-concept scores when compared to the national average.

Locus of Control Orientation

A slightly modified version of the professionally recognized and validated "James' Internal-External Locus of Control Scale" (James, Woodruff & Werner, 1965) was used to measure the locus of control of the three groups of students (APPENDIX I - "James' Internal-External Locus of Control Scale"). An internal locus of control indicates that a student tends to be more self-motivating and to feel that he/she has some control over his/her environment and its circumstances affecting him/her. An external locus of control indicates that a student feels his/her situation or environment is, to a greater degree, a function of people and events outside himself/herself and tends to believe that these external factors are responsible for things that happen to him/her. An external individual also tends to be less self-motivating. This instrument contains 60 items of which 30 are "real items" and 30 are fillers. Respondents are asked to rate the items on a five point Likert-type agree-disagree continuum. The items are worded in the direction of external control, where a "5" represents strongly disagree and a "1" represents strongly agree. The possible score range is from 30 (high external locus of control) to 150 (high internal locus of control). The instrument is self-administered and takes about 15 to 20 minutes to complete.

James, Woodruff & Werner (1965) reported split-half reliability coefficients ranging from 0.84 to 0.95. In terms of validity, MacDonald (1971) found that this instrument correlated (0.64) with another professionally recognized measure of locus of control, thus establishing concurrent validity.

Middle school students in Group C (Table 2) possessed the highest internal, or most desirable, locus of control (M = 98.64, SD = 16.03) when compared to Group A (M = 92.36, SD = 14.89) and Group B (M = 88.93, SD = 21.54). However, significant differences were not determined at the 0.05 level in reference to locus of control for the three groups. Two of the groups (A and C) scored above the scale midpoint of 90, reflecting an internal locus of control orientation, while Group B fell just below the average, reflecting slight external locus of control. A possible explanation for the control group scoring the highest on the locus of control scale is that they have more freedom to choose their own courses of study, while the Academic Challenge students have been "identified" for their specific classes.

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CONCLUSIONS AND RECOMMENDATIONS

This evaluation effort was intended to serve as an initial and exploratory effort to formally examine and document identified aspects of the implementation of the Academic Challenge program. It is hoped that this overall effort would lead to future similar and more refined evaluation studies. Before making any generalizations from the results and commentary, consideration must be given to the assumptions upon which this evaluation has been predicated and the design and statistical limitations inherent in the inquiry methodologies.

The design and interpretation of results of this evaluation have been guided by: (1) a specific set of assumptions, and (2) a desire to bring the attitudes and experiences of those involved in gifted education approaches to bear upon the identified critical issues and concerns surrounding the implementation of gifted education in public school classrooms.

The set of assumptions has basically focused on the principal modes of data collection by way of various instruments, open-ended interviews, and survey-type research methods. These assumptions are:

- that the statements on these instruments and questions asked during interviews were not misinterpreted by the respondents;
- that the respondents did not pursue tangential and/or related issues when reflecting and responding to the items;
- that the respondents did not have any strong prejudices against this type of evaluation which might have influenced their response patterns; and

- that the data do not become less valid with the passing of time (i.e., specific events occurring in the experiences of the respondents between the time the instruments were administered or questions asked and the present have not caused major changes in the attitudes, opinions, performances, and information held by the respondents).

In terms of subject selection, conventional random sampling techniques were not employed. Volunteers and other populations were used because conditions did not allow for a random sample of subjects. Even though all distributions of responses were tested for normality and the appropriate nonparametric statistical treatments applied, some caution should be exercised. In addition, there was a lack of a set of criteria upon which to determine the expertise of the respondents beyond their role or situational descriptions; there were also no attempts at determining the nature or magnitude of the halo, or Hawthorne, effects potentially operating on the respondents' behalf. Generalizations from any results involving tests of significance might be restricted to these groups of subjects. There were also probably many uncontrolled extraneous variables that had been influencing the respondents' perceptions. The assumption of total validity of these perceptions cannot be made because of a lack of direct observation of the Academic Challenge program, the variations in attitudes and behavior patterns of the respondents, and the lack of comparison data from another gifted education project found in a demographically similar school system.

Aside from the acknowledged potential shortcomings, the findings and trends resulting from this evaluation effort appear important. As noted earlier, this endeavor was intended to serve as an exploratory effort which hopefully will lead to similar or

related refined evaluations on gifted education implementations. Further evaluation will help clarify many of the roles, functions, and payoffs associated with gifted education. Continued evaluation will also enable this type of intervention to have a greater impact on the students in classrooms and future teacher education in general.

Conclusions Based on Findings

Based upon the data and information collected by way of a variety of measures and techniques, the following conclusions have been generated as a result of this extensive evaluation:

Elementary School Level:

- Students in the Academic Challenge program significantly improved in their verbal ability of their scholastic aptitude over the course of one school year.
- Students in the Academic Challenge program significantly improved in their non-verbal ability of their scholastic aptitude over the course of one school year.
- Students in the Academic Challenge program significantly improved in their quantitative ability of their scholastic aptitude over the course of the school year.
- Students in the Academic Challenge program significantly improved in every area of abstract thinking skills (knowledge, comprehension, application, analysis and synthesis) over the course of one academic year.
- Students in the Academic Challenge program showed significant improvement over an academic year in verbal aptitude and synthesis abstract thinking skills. The students in a comparison group did not show a significant improvement in the same areas over an academic year.
- Students in the Academic Challenge program significantly improved over the course of the year with respect to overall academic aptitude.
- The Academic Challenge program at the elementary school level is comprehensive in its scholastic domain.

Middle School Level:

- Students in the Academic Challenge program possessed a significantly higher degree of critical thinking skills than students in a comparison group.
- Students who have been in the Academic Challenge program during their elementary and middle school years possess more positive self-images or a higher level of self-concept than students who have only been in the program during their middle school years.
- Student self-image is rather positive, and the Academic Challenge program is viewed as being instrumental in the development and/or enhancement of a positive self-image.
- Students in the Academic Challenge program feel they are more productive, learn more, and are continuously challenged because they interact with other gifted peers and are involved in other types of instructions and learning.
- Students in the Academic Challenge program really like working with and express deep respect for their peers.
- Students in the Academic Challenge program do not feel they act as elitists or perceive themselves as being better than other students, even though students outside of the program sometimes view them as being different and standoffish.

Teachers; Middle School Level:

- There exists a need for continuous inservice preparation, both in the content areas and with respect to techniques for teaching G/T students.
- Differentiated instruction is quite diverse and occurs when appropriate at all grade levels.
- Student evaluation procedures still remain quite traditional in terms of tests and other conventional methods of assessment and grading. However, students still desire to be evaluated in traditional ways.
- Present gifted and talented student identification measures are perceived to be inadequate at the middle school level, especially standardized tests of scholastic aptitude and basic skills achievement. Non-traditional procedures are favored and, at least, need to be tried out.
- Student retention and dealing with low student achievement continue to be one of the major problems plaguing the Academic Challenge program. Counseling a student out of the program is a long, difficult, and agonizing process.

Recommendations for Future Consideration

The following recommendations are set forth based on implicit and explicit perceptions, observations and findings resulting from this evaluation effort, along with the generated conclusions. The recommendations have been grouped into three categories: (1) elementary school program, (2) middle school program, and (3) teachers at the middle school level. Where conclusions have been very positive or highly desirable, the recommendation is simply to maintain the status quo with little or no further discussion. Suggestions on how to implement the recommendations are not provided; concerns of this nature rest with the Academic Challenge staff, advisory groups, involved teachers, and corporation building administrators.

Elementary School Program:

The results of the qualitative and statistical analyses reveal that elementary school students in the Bartholomew County Academic Challenge program improved in all aspects of scholastic aptitude. Because of the comprehensive nature of the program as reflected by these results, it is recommended that no changes be made in the program with respect to the general curriculum and the present emphasis of higher cognitive skills development.

Middle School Program:

Because middle school students feel they are more productive when given a chance to interact with peers and when non-traditional methods of instruction are used, it is recommended that more group projects, field trips, discussion groups, and innovative inquiry teaching methods be incorporated into the program.

Because some students outside of the program still view Academic Challenge students as "elitists" and/or "nerds", every effort should be made to portray and communicate similar attributes, characteristics, and aspects of the two groups of students to the student body, the faculty, and the general population.

Because of the high degree of critical thinking skills the Academic Challenge students possess, it is recommended that current learning processes involving synthesis, analysis, and exploration of problems in the classroom be continued, refined, and expanded.

Every effort should be made to enhance the self-concept of the students who are new to the Academic Challenge program in order to raise it to the level of the other middle school students.

Teachers; Middle School Level:

Inservice preparation workshops need to be continued for teachers in the Academic Challenge program in both content areas and techniques for teaching gifted/talented students.

Traditional methods of grading should continue to be used, although it is recommended that they be complemented with more extensive information as to the progress of each student, and with nontraditional approaches to evaluation.

It is recommended that the current traditional selection criteria of using standardized test scores and teacher nominations be complemented with more nontraditional means of selection.

The matter of student retention and dealing with low student achievement should be discussed in several different contexts, and

possibly the help of an outside expert might be enlisted to further delineate the problems and design strategies to alleviate low student achievement.

Guidelines should be formulated, locally validated, and distributed regarding how to counsel a student out of the Academic Challenge program.

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APPENDIX A

"Program Working Evaluation Design"

DIMENSION #1: "Planning and Teaching Concerns"

POPULATION:

Middle School Teachers and Administrators (Six Key Informants or Major Stakeholders)

METHODOLOGY:

Interviews Conducted by External Evaluator

VARIABLE(S) INVESTIGATED:

Teacher Preparation; Perceptions of Differentiation; Appraisal/ Assessment Process; Identification Procedures; Participant Retention

ESTIMATED COST:

$500.00

EVALUATION QUESTIONS:

What are the present functional concerns of involved teachers and administrators?

What needs to be done to make the program more effective?

IMPLEMENTATION TIMELINE:

April 24, 1986

DATA COLLECTION:

"Professional Staff Academic Challenge Interview Schedule"

DATA REDUCTION/PROCESSING:

Qualitative Analysis; Judgmental Commentary

RESULTS/FINDINGS:

DIMENSION #2: "Productive Student Peer Interaction"

POPULATION:

Middle School Students (Nine Highly Perceptive and Articulate Students Interviewed in Groups of Three)

METHODOLOGY:

Interviews Conducted by External Evaluator

VARIABLE(S) INVESTIGATED:

Self Image Development; On-Task Productivity Enhancement; Acceptance of Peers; Elitist Tendencies

ESTIMATED COST:

$250.00

EVALUATION QUESTIONS:

What is the essence of student peer interaction?

Do benefits and/or limitations accrue as a result of peer interaction?

If so, what are the payoffs or shortcomings?

IMPLEMENTATION TIMELINE:

May 6, 1986

DATA COLLECTION:

"Academic Challenge Student Peer Interaction Interview Schedule"

DATA REDUCTION/PROCESSING:

Qualitative Analysis; Judgmental Commentary

RESULTS/FINDINGS:

DIMENSION #3: "Scholastic Aptitude Enhancement"

POPULATION:

Elementary School Pupils (Grades 4 - 6); Two Samples (N = 35 per group): A = Participant Group
B = Comparison Group

METHODOLOGY:

Standardized Instrument Employed in a Pre-Post Situation (Instruments Can Be Machine Scored by Publisher)

VARIABLE(S) INVESTIGATED:

Verbal Aptitude; Non-Verbal Aptitude; Quantitative Aptitude

ESTIMATED COST:

$100.00

EVALUATION QUESTIONS:

Does the program have an influence on participant scholastic aptitude enhancement?

Are there gains in participant verbal, nonverbal and/or quantitative abilities over a given academic year?

IMPLEMENTATION TIMELINE:

April 15, 1986 to May 15, 1986

DATA COLLECTION:

"Developing Cognitive Abilities Test"

DATA REDUCTION/PROCESSING:

Mann-Whitney U-test

RESULTS/FINDINGS:

DIMENSION #4: "Student Critical Thinking Skills Development"

POPULATION:

Middle School Students (Eighth Grade); Three Biased Samples (N = 20 to 25 per Group):
- A = Program Participant Group
- B = Eligible Non-Participant Group
- C = Academic Capable Comparison Group

METHODOLOGY:

One-Shot Data Collection Effort Using a Standardized Instrument Which Can Be Machine Scored by Publisher

VARIABLE(S) INVESTIGATED:

Analysis; Synthesis; Evaluation; Decision Making; Generalizing; Forming Valid Conclusions

EVALUATION QUESTION(S):

Does the program have an influence on or make a difference in terms of student participant critical thinking skills development?

IMPLEMENTATION TIMELINE:

April 15, 1986 to May 15, 1986

DATA COLLECTION:

"Watson-Glaser Critical Thinking Appraisal"

DATA REDUCTION/PROCESSING:

Kruskal-Wallis One Way Analysis of Variance by Ranks

ESTIMATED COST:

$100.00

RESULTS/FINDINGS:

IMENSION #5: "Student Divergent Thinking Skills Development"

POPULATION:

Middle School Students (Eighth Grade); Three Biased Samples (N = 20 to 25 per Group):
A = Program Participant Group
B = Eligible Non-Participant Group
C = Academic Capable Comparison Group

METHODOLOGY:

One-Shot Data Collection Effort Using a Standardized Instrument Which Can be Machine Scored by Publisher

VARIABLE(S) INVESTIGATED:

Nonverbal Thinking Fluency; Cognitive Flexibility; Communication Elaboration

EVALUATION QUESTION(S):

Does the program have an influence on or make a difference in terms of student-participant divergent thinking skills development?

IMPLEMENTATION TIMELINE:

April 15, 1986 to May 15, 1986

DATA COLLECTION:

"Torrance Test of Creative Thinking"

DATA REDUCTION/PROCESSING:

Kruskal-Wallis One Way Analysis of Variance by Ranks

ESTIMATED COST:

$100.00

RESULTS/FINDINGS:

DIMENSION #6: "Student Study Habits and Attitudes"

POPULATION:

Middle School Students (Eighth Grade); Three Biased Samples (N = 20 to 25 per Group):
- A = Program Participant Group
- B = Eligible Non-Participant Group
- C = Academic Capable Comparison Group

METHODOLOGY:

One-Shot Data Collection Effort Using a Standardized Instrument Which Can Be Machine Scored by Publisher

VARIABLE(S) INVESTIGATED:

Attitudes toward Studying;
Attitudes toward Learning;
Study Habit Patterns;
Study Efficiency Perceptions

EVALUATION QUESTION(S):

Does the program have an influence on or make a difference in terms of student-participant study habits and attitudes?

IMPLEMENTATION TIMELINE:

April 15, 1986 to May 15, 1986

DATA COLLECTION:

"Survey of Study Habits and Attitudes"

DATA REDUCTION/PROCESSING:

Kruskal-Wallis One Way Analysis of Variance by Ranks

ESTIMATED COST:

$100.00

RESULTS/FINDINGS:

DIMENSION #7: "Student Self-Concept Development"

POPULATION:

Middle School Students (Eighth Grade); Three Biased Samples (N = 20 to 25 per Group):
A = Program Participant Group
B = Eligible Non-Participant Group
C = Academic Capable Comparison Group

METHODOLOGY:
One-Shot Data Collection Effort Using a Professionally Recognized Instrument Which Can Be Easily Hand Scored

VARIABLE(S) INVESTIGATED:

Self-Image; Self-Esteem; Self-Acceptance; Acceptance of Others

EVALUATION QUESTION(S):

Does the program have an influence on or make a difference in terms of student-participant self-concept development?

IMPLEMENTATION TIMELINE:

April 15, 1986 to May 15, 1986

DATA COLLECTION:

"Revised Janis-Field Feelings of Inadequacy of Scale"

DATA REDUCTION/PROCESSING:

Kruskal-Wallis One Way Analysis of Variance by Ranks

ESTIMATED COST:

$100.00

RESULTS/FINDINGS:

DIMENSION #8: "Student Locus of Control Orientation"

POPULATION:

Middle School Students (Eighth Grade); Three Biased Samples (N = 20 to 25 per Group):
A = Program Participant Group
B = Eligible Non-Participant Group
C = Academic Capable Comparison Group

METHODOLOGY:

One-Shot Data Collection Effort Using a Professionally Recognized Instrument Which Can Be Easily Hand Scored

VARIABLE(S) INVESTIGATED:

Self-Actualization;
Motivation Influence;
Reinforcement Perception;
Event Interpretation

EVALUATION QUESTION(S):

Does the program have an influence on or make a difference in terms of student-participant locus of control orientation?

IMPLEMENTATION TIMELINE:

April 15, 1986 to May 15, 1986

DATA COLLECTION:

"James' Internal-External Locus of Control Scale"

DATA REDUCTION/PROCESSING:

Kruskal-Wallis One Way Analysis of Variance by Ranks

ESTIMATED COST:

$100.00

RESULTS/FINDINGS:

APPENDIX B

"Professional Staff Academic Challenge Interview-Schedule"

BARTHOLOMEW CONSOLIDATED SCHOOL CORPORATION
1985-86 GIFTED/TALENTED MODEL SITE GRANT

PROFESSIONAL STAFF ACADEMIC CHALLENGE INTERVIEW SCHEDULE

Professional Role:_____

1. If inservice workshops were to be conducted, in what areas (in gifted/talented [g/t] content and process) should they be designed and how should they be delivered?

2. What types of differentiated instruction should occur when working with g/t students? What is done in g/t classes that makes them qualitatively and/or quantitatively different than non-g/t classes?

3. Are the student evaluation or assessment procedures used in g/t classes different than those employed in regular classes? Do you have any suggestions about how methods of evaluating student performance should be changed to meet the needs of g/t students?

4. What are your reactions to the present student identification process at the middle school level? Are there any nontraditional methods for identifying students that could validly be used? How can the present identification process be revised or modified?

5. How should low achieving students in g/t classes be dealt with? When should these students be recommended for counseling out of the program? What might be the elements of a formal g/t counseling out process? What are your feelings about developing strategies for retaining g/t students in Academic Challenge classes despite low achievement?

6. Do you have any other specific concerns about the g/t planning and teaching processes?

APPENDIX C

"Academic Challenge Student Peer Interaction Schedule"

BARTHOLOMEW CONSOLIDATED SCHOOL CORPORATION
1985-86 GIFTED/TALENTED MODEL SITE GRANT

ACADEMIC CHALLENGE STUDENT PEER INTERACTION INTERVIEW SCHEDULE

Grade Level:_____ Gender:_____

1. How do you feel about yourself as a result of being in the Academic Challenge program? Has the program made you feel better about yourself? How or in what ways?

2. Do you feel you learn better as a result of working with your classmates in this Academic Challenge class? Why? What are the situations where working with your classmates helps you learn better?

3. Do you like working all day with your Academic Challenge classmates on projects, assignments and/or activities? Why or why not? What are your feelings about working with classmates whose abilities are similar to yours?

4. Do you feel that you are different by being in an Academic Challenge class? If so, how?

5. Are there any other things that you wish to talk about with respect to working with your classmates in the Academic Challenge program?

APPENDIX D

"Developing Cognitive Abilities Test"

Comprehensive
Assessment Program

Developing Cognitive Abilities Test 5|6A

Donald L. Beggs
Southern Illinois University

John T. Mouw
Southern Illinois University

Program Authors
John W. Wick
Northwestern University

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Scott, Foresman and Company
Test Division

Glenview, Illinois

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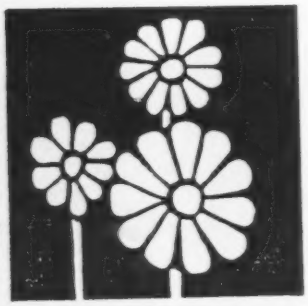

18. During Richard's first year of playing professional ball, he was named _____ of the year.

A. papaya
B. sirloin
C. triangle
D. rookie

19. The audience applauded when the _____ jumped off the trampoline.

A. pantomime
B. acrobat
C. esophagus
D. seersucker

20. When the fire alarm sounds, you must _____ the building.

A. irritate
B. marinate
C. promulgate
D. evacuate

21. Nicole kept laughing because the cartoon was _____.

A. beastly
B. frightening
C. hilarious
D. dreadful

22. The dog is very _____ to its family.

A. inspired
B. innovative
C. accusative
D. devoted

23. I want to _____ you on your successful campaign.

A. impress
B. implicate
C. congratulate
D. enunciate

24. Gina wanted to go sailing so she could _____ the ship.

A. aviate
B. excavate
C. exaggerate
D. navigate

25. Snake is to animal as herb is to

A. horse.
B. plant.
C. fish.
D. animal.

26. Adrift is to floating as complication is to

A. difficulty.
B. untangled.
C. ease.
D. effortless.

27. Fiesta is to holiday as notion is to

A. blaze.
B. capacity.
C. belief.
D. lotion.

28. Absolutely is to completely as antonyms is to

A. opposites.
B. synonyms.
C. homonyms.
D. similar.

29. If a runway is a strip of level ground on which aircraft take off and land, and some aircraft can take off and land on water, then

A. all runways are paved.
B. some planes don't require runways.
C. all runways are under water.
D. all bodies of water can be used as runways.

30. If all boars are keen, and some keen animals are prey, then

A. boars are prey.
B. boars are hunted for food.
C. prey are boars.
D. some boars may be prey.

31. If all princesses are native to the tribe, and some members born into the tribe are tall, then

A. some princesses may come from other tribes.
B. all tall members of the tribe are princesses.
C. all tall princesses may come from other tribes.
D. some princesses may be tall.

32. Two-fifths of a group is

A. 30 percent.
B. 40 percent.
C. 60 percent.
D. none of these.

33. On a map 2 towns are 8 inches apart. One inch represents 40 miles. How far apart are the towns?

A. 300 miles
B. 320 miles
C. 360 miles
D. none of these

APPENDIX E

"Watson-Glaser Critical Thinking Appraisal"

Form A

WATSON-GLASER

CRITICAL THINKING APPRAISAL

DIRECTIONS

This booklet contains five types of tests designed to find out how well you are able to reason analytically and logically. *Each test has separate directions that should be read carefully.*

Do not turn this page until instructed to do so.

Do not make any marks in this test booklet.

All answers are to be marked on the separate answer sheet provided. Use a sharp No. 2 lead pencil to mark your answers. If you wish to change an answer, be sure to erase your old answer completely.

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8-992901

TEST 2: RECOGNITION OF ASSUMPTIONS

DIRECTIONS

An assumption is something presupposed or taken for granted. When you say, "I'll graduate in June," you take for granted or assume that you will be alive in June, that your school will judge you to be eligible for graduation in June, and similar things.

Below are a number of statements. Each statement is followed by several proposed assumptions. You are to decide for each assumption whether a person, in making the given statement; is really making that assumption—that is, taking it for granted, justifiably or not.

If you think that the given assumption is taken for granted in the statement, make a heavy black mark under "ASSUMPTION MADE" in the proper place on the answer sheet. If you think the assumption is *not* necessarily taken for granted in the statement, blacken the space under "ASSUMPTION NOT MADE." Remember to judge each assumption independently.

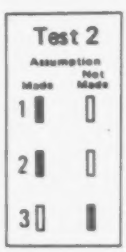
Below is an example. The block at the right shows how these items should be marked on the answer sheet.

EXAMPLE

Statement: "We need to save time in getting there so we'd better go by plane."

Proposed assumptions:

1. Going by plane will take less time than going by some other means of transportation. (It is assumed in the statement that the greater speed of a plane over the speeds of other means of transportation will enable the group to reach its destination in less time.)
2. There is plane service available to us for at least part of the distance to the destination. (This is necessarily assumed in the statement since, in order to save time by plane, it must be possible to go by plane.)
3. Travel by plane is more convenient than travel by train. (This assumption is not made in the statement—the statement has to do with saving time, and says nothing about convenience or about any other specific mode of travel.)



EXERCISES

Statement: "In the long run, the discovery of additional uses for atomic energy will prove a blessing to humanity."

Proposed assumptions:

17. Additional and beneficial ways of using atomic energy will be discovered.
18. The discovery of additional uses for atomic energy will require large, long-term investments of money.
19. The use of atomic energy represents a serious environmental hazard.

Statement: "Zenith is the city to move to—it has the lowest taxes."

Proposed assumptions:

20. Lower taxes imply efficient city management.
21. In deciding where to live, it is important to avoid high taxes.
22. The majority of the residents in Zenith are content with their present city government.

Statement: "We have permitted ourselves to be stampeded into a life of unnatural and dangerous high pressure. We pace ourselves by machines instead of by our natural rhythm."

Proposed assumptions:

23. We can resist being pushed into a life of unnatural high pressure.
24. The way of life we have adopted is not in tune with the way human beings were meant to live.
25. The rapid pace of our lives does not help us to achieve our goals.

Statement: "I'm traveling to South America. I want to be sure that I do not get typhoid fever, so I shall go to my physician and get vaccinated against typhoid fever before I begin my trip."

Proposed assumptions:

26. If I don't take the injection, I shall become ill with the fever.
27. By getting vaccinated against typhoid fever, I decrease the chances that I will get the disease.
28. Typhoid fever is more common in South America than it is where I live.
29. My physician can provide me with a vaccination that will protect me from getting typhoid fever while I am in South America.

Statement: "If war is inevitable, we'd better launch a preventive war now while we have the advantage."

Proposed assumptions:

30. War is inevitable.
31. If we fight now, we are more likely to win than we would be if forced to fight later.
32. If we don't launch a preventive war now, we'll lose any war that may be started by an enemy later.

TEST 3: DEDUCTION

DIRECTIONS

In this test, each exercise consists of several statements (premises) followed by several suggested conclusions. *For the purposes of this test, consider the statements in each exercise as true without exception.* Read the first conclusion beneath the statements. If you think it *necessarily* follows from the statements given, make a heavy black mark under "CONCLUSION FOLLOWS" in the proper place on the answer sheet. If you think it is *not a necessary conclusion* from the statements given, put a heavy black mark under "CONCLUSION DOES NOT FOLLOW," even though you may believe it to be true from your general knowledge.

Likewise, read and judge each of the other conclusions. Try not to let your prejudices influence your judgment—just stick to the given statements (premises) and judge each conclusion as to whether it *necessarily* follows from them.

The word "some" in any of these statements means an indefinite part or quantity of a class of things. "Some" means *at least* a portion, and *perhaps* all of the class. Thus, "Some holidays are rainy" means *at least* one, possibly more than one, and *perhaps* even all holidays are rainy.

Study the example carefully before starting the test.

EXAMPLE

Some holidays are rainy. All rainy days are boring. Therefore—

1. No clear days are boring. (The conclusion does not follow. You cannot tell from the statements whether or not clear days are boring. Some may be.)
2. Some holidays are boring. (The conclusion necessarily follows from the statements since, according to them, the rainy holidays must be boring.)
3. Some holidays are not boring. (The conclusion does not follow, even though you may know that some holidays are very pleasant.)

EXERCISES

No person who thinks scientifically places any faith in the predictions of astrologers. Nevertheless, there are many people who rely on horoscopes provided by astrologers. Therefore—

33. People who lack confidence in horoscopes think scientifically.

34. Many people do not think scientifically.

35. Some scientific thinkers trust some astrologers.

All members of symphony orchestras enjoy playing classical music. All members of symphony orchestras spend long hours practicing. Therefore—

36. Musicians who play classical music do not mind spending long hours practicing.

37. Some musicians who spend long hours practicing enjoy playing classical music.

Rice and celery must have a good deal of moisture in order to grow well, but rye and cotton grow best where it is relatively dry. Rice and cotton grow where it is hot, and celery and rye where it is cool. In Timbuktu, it is very hot and damp. Therefore—

38. Neither the temperature nor the moisture conditions in Timbuktu are favorable for growing a celery crop.

39. The temperature and moisture conditions in Timbuktu are more favorable for growing rice than for growing celery, cotton, or rye.

40. Conditions in Timbuktu are not altogether favorable for growing a cotton or a rye crop.

Most persons who attempt to break their smoking habit find that it is something that they can accomplish only with difficulty, or cannot accomplish at all. Nevertheless, there is a growing number of individuals whose strong desire to stop smoking has enabled them to break the habit permanently. Therefore—

41. Only smokers who strongly desire to stop smoking will succeed in doing so.

42. A strong desire to stop smoking helps some people to permanently break the habit.

In one town there are 52 classes in the five elementary schools. Each class contains from 10 to 40 pupils. Therefore—

43. There are at least two classes in the town with exactly the same number of pupils.

44. Most elementary school classes in the town contain more than 15 pupils.

45. There are at least 550 pupils in these elementary schools.

Some Russians would like to control the world. All Russians seek a better life for themselves. Therefore—

46. Some people who would like to control the world seek a better life for themselves.

47. Some people who seek a better life for themselves would like to control the world.

48. If the Russians controlled the world, they would be assured of a better life.

APPENDIX F

"Torrance Tests of Creative Thinking"

THINKING CREATIVELY WITH WORDS

By E. Paul Torrance

VERBAL BOOKLET A

NAME _____

AGE _____ SEX _____

SCHOOL _____

GRADE _____

CITY _____

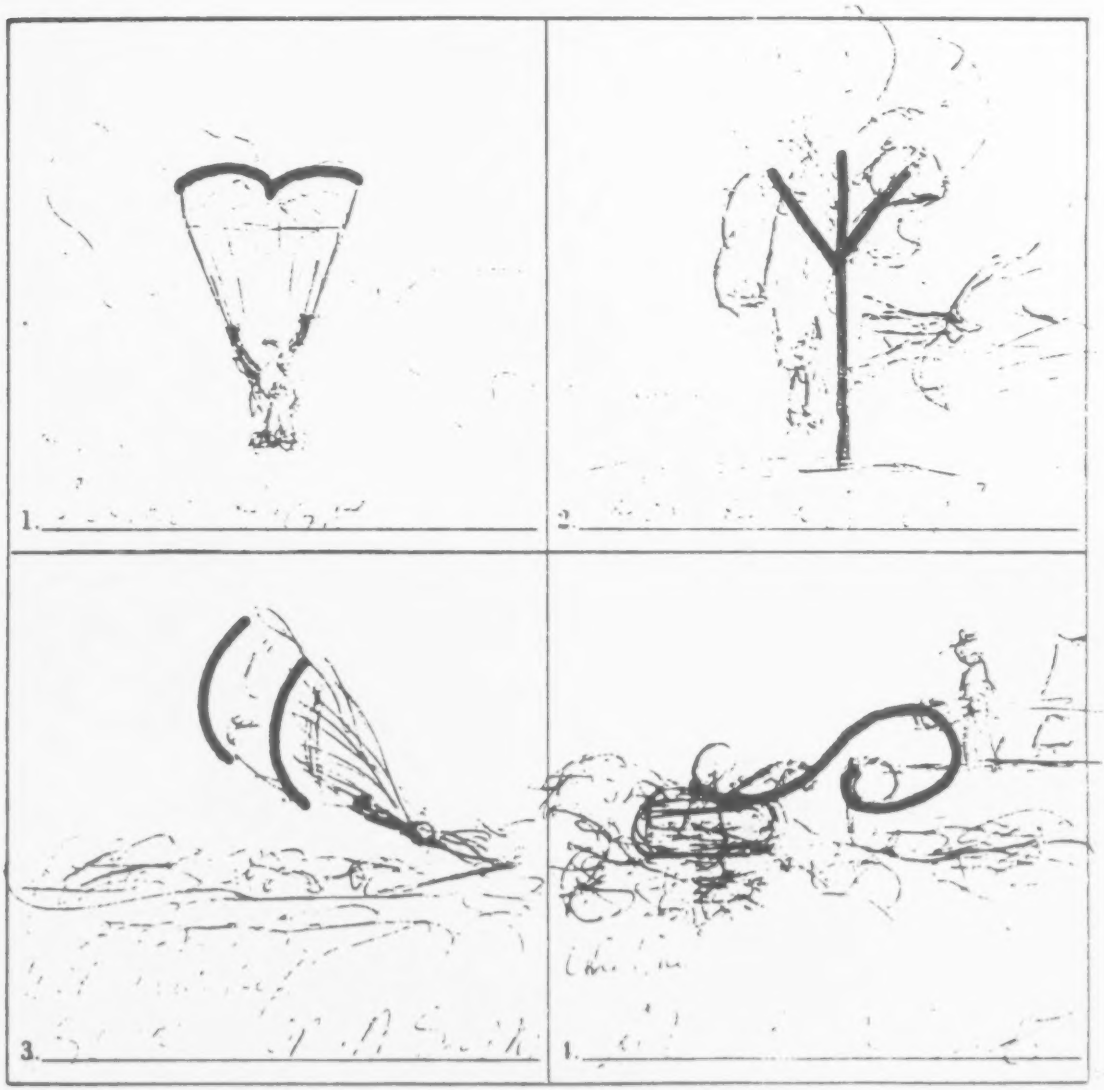
DATE _____

SCHOLASTIC TESTING SERVICE, INC.
480 Meyer Rd., Bensenville, IL 60106

Torrance Tests of Creative Thinking

PICTURE COMPLETION

By adding lines to the incomplete figures on this and the next page, you can sketch some interesting objects or pictures. Again, try to think of some picture or object that no one else will think of. Try to make it tell as complete and as interesting a story as you can by adding to and building up your first idea. Make up an interesting title for each of your drawings and write it at the bottom of each block next to the number of the figure.



APPENDIX G

"Survey of Study Habits and Attitudes"

Form C

SSHA

Survey of Study Habits and Attitudes

Brown—Holtzman

Do not open this booklet until you are told to do so. Wait for the examiner's instructions.

DO NOT MAKE ANY MARKS IN THIS BOOKLET

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68-200TB

DIRECTIONS

The purpose of this survey is to furnish an inventory of study habits and attitudes to serve as a foundation for self-improvement. If taken seriously, this inventory can help you obtain a better understanding of how to study properly. If you will honestly and thoughtfully mark all of the statements on the pages that follow, you will be able to learn many of your study faults. The value of this survey to you will be in direct proportion to the care with which you mark each statement. Since your answers will be treated with the strictest confidence, feel free to answer all questions frankly.

You will mark your answers on a separate answer sheet. Make no marks on this booklet. There are 100 statements in this questionnaire. For each statement a five-point scale is provided for indicating whether you rarely, sometimes, frequently, generally, or almost always do or feel as the statement suggests. You are to rate yourself on each statement by marking the space on your answer sheet that represents your answer choice. Thus, for example, you would mark space **R** on your answer sheet if you *rarely* follow the procedure described or if you feel that the statement is *rarely* true for you. In marking your answers, be sure that the number of the statement agrees with the number on the answer sheet. Make sure that your marks are heavy and black. Make no stray marks on the answer sheet and erase completely any mark that you wish to change.

To aid you in answering this questionnaire, the terms have been defined on a percentage basis as follows:

R – RARELY means from 0 to 15 per cent of the time.
S – SOMETIMES means from 16 to 35 per cent of the time.
F – FREQUENTLY means from 36 to 65 per cent of the time.
G – GENERALLY means from 66 to 85 per cent of the time.
A – ALMOST ALWAYS means from 86 to 100 per cent of the time.

Remember, you are asked to rate yourself, not in accordance with what you think you *should* do or feel, or as you think *others* might do or feel, but as you yourself are in the habit of doing and feeling. When you cannot answer a statement on the basis of actual experience, mark the statement according to what you would be most likely to do if the situation should arise.

There are no "right" or "wrong" answers to these statements, and there is no time limit for this questionnaire. Work as rapidly as you can without being careless, and do not spend too much time on any one statement. Please do not omit any of the statements.

R—RARELY S—SOMETIMES F—FREQUENTLY G—GENERALLY A—ALMOST ALWAYS

1. When my assigned homework is extra long or unusually difficult, I either quit in disgust or study only the easier parts of the lesson.
2. In preparing reports, themes, term papers, etc., I make certain that I clearly understand what is wanted before I begin work.
3. I feel that teachers lack understanding of the needs and interests of students.
4. My dislike for certain teachers causes me to neglect my school work.
5. When I get behind in my school work for some unavoidable reason, I make up back assignments without prompting from the teacher.
6. Difficulty in expressing myself in writing slows me down on reports, themes, examinations, and other work to be turned in.
7. My teachers succeed in making their subjects interesting and meaningful to me.
8. I feel that I would study harder if I were given more freedom to choose courses that I like.
9. Daydreaming about dates, future plans, etc., distracts my attention from my lessons while I am studying.
10. My teachers criticize my written reports as being hastily written or poorly organized.
11. I feel that teachers allow their personal like or dislike for a student to influence their grading unduly.
12. Even though I don't like a subject, I still work hard to make a good grade.
13. Even though an assignment is dull and boring, I stick to it until it is completed.
14. I give special attention to neatness on themes, reports, and other work to be turned in.
15. I believe that the easiest way to get good grades is to agree with everything your teachers say.
16. I lose interest in my studies after the first few days of a new semester.
17. I keep all the notes for each subject together, carefully arranging them in some logical order.
18. I memorize grammatical rules, definitions of technical terms, formulas, etc., without really understanding them.
19. I think that teachers like to exercise their authority too much.
20. I believe that teachers truly want their students to like them.
21. When I am having difficulty with my school work, I try to talk over the trouble with the teacher.
22. I hesitate to ask a teacher for further explanation of an assignment that is not clear to me.
23. I feel that teachers are too rigid and narrow-minded.
24. I feel that students are not given enough freedom in selecting their own topics for themes and reports.
25. I lay aside returned examinations, reports, and homework assignments without bothering to correct errors noted by the instructor.
26. I get nervous and confused when taking an examination and fail to answer questions to the best of my ability.
27. I think that teachers expect students to do too much studying outside of class.
28. Lack of interest in my school work makes it difficult for me to keep my attention focused on assigned reading.
29. I keep my place of study business-like and cleared of unnecessary or distracting items such as pictures, letters, mementos, etc.
30. I have trouble with the mechanics of English composition.
31. When explaining a lesson or answering questions, my teachers use words that I do not understand.
32. Unless I really like a course, I believe in doing only enough to get a passing grade.
33. Telephone calls, people coming in and out of my room, "bull-sessions" with my friends, etc., interfere with my studying.

APPENDIX H

"Revised Janis-Field Feelings of Inadequacy Scale"

Directions:

* * * \

5. How often do you worry about whether other people like to be with you?

1	2	3	4	5	
Very Often	Fairly Often	Some-times	Once in a Great While	Practically Never	5. _____

6. When you talk in front of a group of people of your own age, how pleased are you with your performance?

5	4	3	2	1	
Very Pleased	Pleased Fairly Often	Pleased some-times	Pleased Once in a Great While	Pleased Practically Never	6. _____

7. How often do you feel self-conscious?

1	2	3	4	5	
Very Often	Fairly Often	Some-times	Once in a Great While	Practically Never	7. _____

8. How comfortable are you when starting a conversation with people you don't know?

5	4	3	2	1	
Very Comfortable	Comfortable Fairly Often	Comfortable Some-times	Comfortable Once in a Great While	Comfortable Practically Never	8. _____

9. How often are you troubled with shyness?

1	2	3	4	5	
Very Often	Fairly Often	Some-times	Once in a Great While	Practically Never	9. _____

10. How often do you feel that you are a successful person?

5	4	3	2	1	
Very Often	Fairly Often	Some-times	Once in a Great While	Practically Never	10. _____

11. How often do you feel inferior to most of the people you know?

1	2	3	4	5	
Very Often	Fairly Often	Some-times	Once in a Great While	Practically Never	11. _____

12. How confident are you that your success in your future job or career is assured?

5	4	3	2	1	
Very Confident	Confident Fairly Often	Confident Some-times	Confident Once in a Great While	Confident Practically Never	12. _____

13. Do you ever think that you are a worthless individual?

1	2	3	4	5	
Very Often	Fairly Often	Some-times	Once in a Great While	Practically Never	13. _____

14. When you speak in a group of people, how sure of yourself do you feel?

5	4	3	2	1	
Sure Very	Sure Fairly	Sure Some-times	Sure Once in a Great While	Sure Practically Never	14. _____

15. How much do you worry about how well you get along with other people?

1	2	3	4	5	
Worry Very Often	Worry Fairly Often	Worry Some-times	Worry Once in a Great While	Worry Practically Never	15. _____

16. How sure of yourself do you feel when among strangers?

5	4	3	2	1	
Sure Very Often	Sure Fairly Often	Sure Some-times	Sure Once in a Great While	Sure Practically Never	16. _____

17. How often do you feel that you dislike yourself?

1	2	3	4	5	
Very Often	Fairly Often	Some-times	Once in a Great While	Practically Never	17. _____

18. How confident do you feel that some day the people you know will look up to you and respect you?

5	4	3	2	1	
Confident Very Often	Confident Fairly Often	Confident Some-times	Confident Once in a Great While	Confident Practically Never	18. _____

19. Do you ever feel so discouraged with yourself that you wonder whether anything is worthwhile?

1	2	3	4	5	
Very Often	Fairly Often	Some-times	Once in a Great While	Practically Never	19. _____

20. In general, how confident do you feel about your abilities?

5	4	3	2	1	
Confident Very Often	Confident Fairly Often	Confident Some-times	Confident Once in a Great While	Confident Practically Never	20. _____

APPENDIX I

"James Internal-External Locus of Control Scale"

Directions:

* * * *

3. Many times I feel that we might just as well make many of our decisions by flipping a coin:

1	2	3	4	5
SA	A	U	D	SD

3. _____

4. The actions of other people toward me many times have me baffled:

1	2	3	4	5
SA	A	U	D	SD

4. _____

5. Getting a good job seems to be largely a matter of being lucky enough to be in the right place at the right time:

1	2	3	4	5
SA	A	U	D	SD

5. _____

6. A great deal that happens to me is probably just a matter of chance:

1	2	3	4	5
SA	A	U	D	SD

6. _____

7. I feel that I have little influence over the way people behave:

1	2	3	4	5
SA	A	U	D	SD

7. _____

8. Much of the time the future seems uncertain to me:

1	2	3	4	5
SA	A	U	D	SD

8. _____

9. Some people seem born to fail while others seem born for success no matter what they do:

1	2	3	4	5
SA	A	U	D	SD

9. _____

10. It is difficult for ordinary people to have much control over what politicians do in office:

1	2	3	4	5
SA	A	U	D	SD

10. _____

11. I feel that many people could be described as victims of circumstances beyond their control:

1	2	3	4	5
SA	A	U	D	SD

11. _____

12. It seems many times that the grades one gets in school are more dependent on the teachers' whims than on what the student can really do:

1	2	3	4	5
SA	A	U	D	SD

12. _____

13. It isn't wise to plan too far ahead because most things turn out to be a matter of good or bad fortune anyhow.

1	2	3	4	5
SA	A	U	D	SD

13. _____

14. I can't understand how it is possible to predict other people's behavior:

1	2	3	4	5
SA	A	U	D	SD

14. _____

15. When things are going well for me, I consider it due to a run of good luck:

1	2	3	4	5
SA	A	U	D	SD

15. _____

16. There's not much use in trying to predict which questions a teacher is going to ask on an examination:

1	2	3	4	5
SA	A	U	D	SD

16. _____

17. Most people don't realize the extent to which their lives are controlled by accidental happenings:

1	2	3	4	5
SA	A	U	D	SD

17. _____

18. I have usually found that what is going to happen will happen:

1	2	3	4	5
SA	A	U	D	SD

18. _____

19. Most of the disappointing things in my life have contained a large element of chance:

1	2	3	4	5
SA	A	U	D	SD

19. _____

20. I don't believe that a person can really be a master of his fate:

1	2	3	4	5
SA	A	U	D	SD

20. _____

21. Success is mostly a matter of getting good breaks:

1	2	3	4	5
SA	A	U	D	SD

21. _____

22. Events in the world seem to be beyond the control of most people:

1	2	3	4	5
SA	A	U	D	SD

22. _____

23. I feel that most people can't really be held responsible for themselves since no one has much choice about where he was born or raised:

1	2	3	4	5
SA	A	U	D	SD

23. _____

24. Many times the reactions of people seem haphazard to me:

1	2	3	4	5
SA	A	U	D	SD

24. _____

25. There's not much use in worrying about things . . . what will be, will be:

1	2	3	4	5
SA	A	U	D	SD

25. _____

26. Success in dealing with people seems to be more a matter of the other person's moods and feelings at the time rather than one's own action:

1	2	3	4	5
SA	A	U	D	SD

26. _____

27. I think that life is mostly a gamble:

1	2	3	4	5
SA	A	U	D	SD

27. _____

28. Sometimes I feel that I don't have enough control over the direction my life is taking:

1	2	3	4	5
SA	A	U	D	SD

28. _____

29. Many times I feel that I have little influence over the things that happen to me:

1	2	3	4	5
SA	A	U	D	SD

29. _____

30. Life is too full of uncertainties:

1	2	3	4	5
SA	A	U	D	SD

30. _____